

**CURRENT CONDITIONS REPORT  
DELPHI ENERGY & CHASSIS SYSTEMS  
PLANT 400  
1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN**

**US EPA ID # MID 005 356 647**

**by**

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**for**

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## LIST OF ACRONYMS AND ABBREVIATIONS

AOI	Area of Interest
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
C&O	Chesapeake and Ohio Railroad
CCR	Current Conditions Report
Delphi	Delphi Corporation
ECT	Environmental Consulting & Technology, Inc.
EI	Environmental Indicator
GM	General Motors Corporation
GPRA	Government Performance Results Act
Haley & Aldrich	Haley & Aldrich, Inc.
HWMU	Hazardous Waste Management Unit
LNAPL	Light Non-Aqueous Phase Liquid
mg/kg	milligrams per kilogram
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MTBE	Methyl-tert-butyl ether
MW	Monitoring Well
NA	Not Analyzed
ND	Not Detected
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanographic and Atmospheric Administration
NRC	National Response Center
PAH (also PNA)	Polynuclear Aromatic Hydrocarbon
PA/VSII	Preliminary Assessment/Visual Site Inspection
PCB	Polychlorinated Biphenyl
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SAAAs	Satellite Accumulation Areas
SVOC	Semi-Volatile Organic Compound
TCA	Trichloroethane
TCE	Trichloroethylene (also Trichloroethene)
TPH	Total Petroleum Hydrocarbons
U.S. EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

## I. INTRODUCTION

Haley & Aldrich, Inc. (Haley & Aldrich) prepared this Current Conditions Report (CCR) under the direction of Delphi Corporation (Delphi) for the Delphi Energy & Chassis Systems Plant 400 located at 1300 North Dort Highway in Flint, Michigan. This CCR is prepared pursuant to the Voluntary Corrective Action Agreement (VCA Agreement) between the United States Environmental Protection Agency (U.S. EPA) Region V and Delphi, dated 20 September 2002 under the Resource Conservation and Recovery Act (RCRA). The U.S. EPA ID Number for the Site is # MID 005 356 647.

Plant 400 is also known as the Dort Highway plant (hereafter referred to as the "Site"). The Site occupies approximately 68 acres in a predominantly commercial and industrial area. The Site Location is shown on Figure 1, and the Site Layout is shown on Figure 2. The Site is part of the Flint East complex of contiguous sites owned by Delphi (Figure 1). Delphi's Plant 500 is located on adjacent property to the east of Plant 400, and Plants 600 and 700 (together known as the Averill Avenue complex) are located east of Plant 500. The wastewater treatment plant (WWTP) for these plants is located south of the Site. Plants 500, 600/700, and the WWTP have separate EPA ID numbers and therefore not covered by this CCR.

The Site was originally owned by General Motors Corporation (GM). GM completed its divestiture of Delphi in May 1999, at which time Delphi became the owner of the Site. For convenience, the Site owner is referred to as Delphi in this CCR regardless of the time frame discussed.

The U.S. EPA is using two Environmental Indicators (EI) to measure RCRA program performance for the Government Performance Results Act (GPRA) enacted in 1993: (1) Current Human Exposures Under Control (CA725) and (2) Migration of Contaminated Groundwater Under Control (CA750). The Site is listed on the U.S. EPA's GPRA list. Under the VCA Agreement, Delphi is collecting the information necessary to complete forms CA725 and CA750 through a "Yes" determination for these Environmental Indicators.

This CCR presents a summary of the individual areas of interest (AOIs) at the Site that may have had a potential for a release(s) of hazardous constituents to the environment. This CCR also provides recommendations concerning whether or not additional investigation of these areas is warranted in order to determine if a release has occurred.

Forty-eight AOIs were identified by Haley & Aldrich based on information obtained during the following activities:

- reviewing applicable environmental files maintained by Delphi, by the Michigan Department of Environmental Quality (MDEQ), and by U.S. EPA Region V;
- conducting interviews with Delphi personnel knowledgeable about Site conditions and history;
- conducting Site visits in September and October 2000; and
- comparison of soil and groundwater data to most stringent Michigan Part 201 data.

This document includes the following sections:

Section II describes background information on the Site, and presents a summary of the regional setting, pertinent boundary features, general physiography, hydrogeology, previous investigations, and historical use of the Site for the treatment, storage, or disposal of solid and hazardous waste.

Section III describes the 48 AOIs identified at the Site and whether or not additional investigation is warranted.

References are presented at the end of the report text. A summary of AOIs identified at the Site is presented in Table 1. AOIs to be investigated are summarized in Table 2. Figures showing the location and various physical features of the Site are presented following the tables.

Several appendices are included:

- test borings, well logs, and well abandonment logs from previous investigations (Appendix A);
- Site plans showing the locations of current and historic underground storage tanks (USTs, Appendix B), satellite accumulation areas (SAAs, Appendix C), and polychlorinated biphenyl (PCB)-containing electrical transformers (Appendix D), and;
- figures and tables summarizing sampling and analysis results from previous investigations at individual AOIs (Appendices E through N).

## **II. SITE BACKGROUND**

### **2.1 Site Location**

The Site is located in Section 9 of Township 7 North and Range 7 East in the City of Flint, Genesee County, Michigan (Figure 1). The Site is a portion of a larger Delphi complex known as “Flint East.” The Site itself is known as the “Dort Highway” plant or “Plant 400” and is bounded by Dort Highway on the west, by Davison Road on the north, by a Chesapeake and Ohio (C&O) Railroad line on the east, and by a Grand Trunk West Railroad line on the south (Figure 2). Robert T. Longway Boulevard is located along the south side of the Grand Trunk rail line.

### **2.2 Surrounding Land Use**

Physical features of the area surrounding the Site are shown on Figure 1. Industrial and commercial properties are located north of Davison Road. Commercial properties and residential neighborhoods are along Dort Highway west of the Site. Commercial properties and Delphi’s wastewater treatment plant for the Flint East complex are located along Robert T. Longway Boulevard south of the Site. An employee parking lot for both Plant 400 and the Plant 500 Engineering Complex is located east of the Site on the east side of the C&O Railroad. Gilkey Creek is approximately 0.2 miles south of the Site.

### **2.3 Demographics**

The Site is located in the City of Flint. According to a demographic release made by the U.S. Census Bureau, the City of Flint covers 33.8 square miles (87.6 square kilometers). The Census data estimated the 1999 population of Flint to be 140,761.

### **2.4 Climate**

The climate in Genesee County is temperate with an average daily temperature in Flint of 47° F (Fahrenheit). The lowest average daily temperature is 15° F in January and the highest average daily temperature is 82° F in July. Extreme temperatures have ranged from -25° F to 101° F. Most precipitation occurs between April and September with an average yearly precipitation of approximately 30.6 inches. The driest periods generally occur in fall and the wettest periods in the spring. The mean, annual wind speed is 11 miles per hour.

### **2.5 Ecology**

An ecological assessment has not been performed at the Site.

## **2.6 Site Geology**

According to the Michigan Department of Public Health Water Well and Pump Records for wells installed between 0.5 and 1 mile from the Site, two general geologic units characterize regional hydrologic conditions. The region is underlain by 70 to 120 feet of unconsolidated glacial sediments described as clay and sand. Underlying the glacial sediments, typically at depths of 100 to 120 feet below surface, a limestone or sandstone bedrock unit is reportedly present.

The Quaternary Geology Map of Southern Michigan (Michigan Department of Natural Resources/MDNR, 1982) indicates that the Site overburden is comprised of gray to dark reddish brown lacustrine clay and silt. These unconsolidated strata typically underlie the flat, low-lying areas formerly inundated by the glacial Great Lakes. According to the Centennial Geological Map of the Southern Peninsula of Michigan (MDNR, 1936), the unconsolidated glacial sediments are underlain by bedrock of the Pennsylvanian Saginaw Series. The Series consists of the Upper and Lower Saginaw and Verne Limestone Formations. These are predominantly carbonate sedimentary units. The top of bedrock in the area is reported to be typically 100 to 150 feet below surface grade.

Geologic conditions to a depth of 36 feet below ground surface (bgs) have been characterized during various investigations performed at the Site. These investigations focused on soil and groundwater conditions at several individual AOIs and on hydrogeologic conditions at the Site perimeter. A summary of the conditions observed from previous investigations is presented below.

Previous investigations indicate fill soils are present from ground surface to depths from 7 to 10 feet. Fill soils consist of sand, silt, clay, and gravel with significant variability in grain size over the Site. A saturated sand zone was encountered beneath the fill across most of the Site and ranged in thickness from approximately 0.5 to 15 feet.

This upper saturated sand unit is generally underlain by a clay and silt unit. The clay layer appears to be consistent across the Site except for the northwest portion where borings did not encounter the clay. The thickness of the clay is not known for most of the Site as the majority of the wells are screened in the upper saturated sand zone. Two monitoring wells were drilled through the clay and encountered a lower saturated sand unit containing some interbedded clays. The depth of the top of the lower sand was encountered at 20 to 28 feet bgs.

## **2.7 Hydrogeologic Setting**

Regionally, the only hydrogeologic unit of significance is the top of bedrock. One well was identified approximately 1300 yards, east-southeast from the site during a well search at the Michigan Department of Public Health. It is not known if this well is a drinking water well. According to the owner, this residential well is currently not in use. Wells in the area tap the upper 10 to 20 feet of bedrock and are reported to yield between 10 and 50 gpm. There are no records indicating that potable water wells are set in the glacial sediments above the top of bedrock and Site information indicates yields in the overburden are generally insufficient to sustain use in a single residence.



Hydrologic conditions in the shallow overburden at the site have been monitored as part of the various investigations performed by Haley & Aldrich. These investigations have identified two saturated zones in the upper 35 feet of the overburden.

A saturated zone was encountered at depths of 6 to 15 feet below surface in areas where sandy fill soils and the first silty sand unit are present. This hydrostratigraphic unit appears continuous throughout the Site. Monitoring wells were set in the upper saturated zone to assess groundwater quality and hydrologic conditions at the Site. Well screens generally range between 6 and 12 feet below surface. Investigations indicate that the upper saturated sandy zone is relatively thin and yields only limited volumes of groundwater when pumped or bailed. However, the majority of wells set in this zone have contained water sufficient for monitoring and sampling purposes on each monitoring occasion since their installation. The calculated hydraulic conductivities at selected monitoring wells ranged from  $6.8 \times 10^{-4}$  to  $6.8 \times 10^{-3}$  cm/sec in the upper sand unit.

A second saturated zone was also identified during previous Site investigations. Saturated sediments were encountered at depths of 25 to 30 feet near the Container Storage Area and between 15 and 25 feet below surface near the northwestern and southeastern site perimeter. The saturated strata in these locations generally consisted of silty sands that are overlain by silty, sandy clays. The thickness of this hydrostratigraphic unit is unknown. Where both saturated zones were encountered in the eastern portion of the site, the two zones were separated by 12 to 14 feet of the silty, sandy clay unit. The estimated horizontal hydraulic conductivity of the lower sand unit ranges from  $2.6 \times 10^{-4}$  to  $1.1 \times 10^{-2}$  cm/sec.

During a groundwater perimeter well monitoring event in April 2000, groundwater elevations at the site wells installed to shallow depths ranged between 746 and 754 feet above the National Geodetic Vertical Datum (NGVD). Preliminary investigations suggest upper groundwater flows toward the south-southwest in the northern part of the Site and toward the north-northeast in the southern part of the Site (Figure 4). The April 2000 data included groundwater level measurements from perimeter wells only. Although not determined, it is suspected that the shallow overburden in the interior areas may be influenced by subsurface structures (i.e., basements, underground utilities, etc.) Work performed during the RFI will provide additional information on groundwater flow conditions in the saturated zones.

Groundwater levels were also measured in April 2000 at wells screened in the deeper saturated sand. Elevations ranged between approximately 738 and 741 feet NGVD. Preliminary investigations suggest groundwater flows to the southwest in this zone (Figure 5). Work performed during the RFI will provide additional information on groundwater flow conditions in the lower saturated zone. To date, no wells have been installed in the top of bedrock underlying the Site.

Previous investigations at the Delphi Flint East complex have included monitoring of groundwater conditions in overburden at the Plant 500 and Plant 600/700 sites. These investigations and those performed at the Site indicate that hydrogeologic conditions in the overburden at the Flint East complex are laterally variable and do not correlate well over relatively short distances in some areas.

The vertical groundwater flow component between saturated zones has not been fully determined to date. Well installations planned for the RFI will include well cluster installations to evaluate vertical flow components as well as the continuity of the clay unit beneath the Site.

Laboratory analysis of groundwater samples has indicated that groundwater in both saturated zones contains concentrations of volatile organic compounds (VOCs) (Table 3). 1,1-Dichloroethene, trichloroethene, 1,1,1-trichloroethane and vinyl chloride were detected above MDEQ Generic Cleanup Criteria for potable industrial use. Organic solvents have been detected in the groundwater just beyond the Site boundary in the northwest corner of the Site. In addition, these compounds have been detected in groundwater at the southeast property boundary. In response to this finding, groundwater in these areas has been identified as AOI-48 and is discussed in Section III, Table N3, and Appendix N.

## **2.8 Wetlands**

Haley & Aldrich did not observe permanent or intermittent wetlands on or adjacent to the Site. Review of U.S. Geological Survey's topographic maps does not indicate the presence of mappable wetlands within one mile of the Site. The closest surface water body is Gilkey Creek, which is located approximately 0.2 miles south of the Site.

## **2.9 Site and Regional Topography**

The topography of the area around the Site is shown on Figure 1. Figure 1 is based on the U.S. Geological Survey's 7.5-minute topographic map of the Flint North quadrangle.

The ground surface elevation at the Site is approximately 760 feet above the NGVD. The Site and surrounding area are generally flat and are developed. Subsurface investigations indicate that fill is approximately 7 to 10 feet thick. This indicates that Site topography is roughly the same as it was prior to development.

## **2.10 Surface Water Drainage**

Based on the regional and Site topography, surface runoff in the vicinity of the Site drains generally to the south toward Gilkey Creek. Gilkey Creek, a perennial stream, flows to the west and joins the Flint River approximately 1.5 miles west of the Site.

According to the National Flood Insurance Program, the Site and surrounding areas are not located in 100- or 500-year flood plains.

## **2.11 Site History**

The Site was first developed in the early-1900s. The first structures were constructed on the northwestern portion of the Site and housed ceramics manufacturing operations. These early operations evolved into the manufacturing of automobile components. The manufacturing plant expanded over time and grew to roughly its current configuration by the 1950s. Automobile components have been manufactured at the Site since early in its history. The automotive products manufactured at the Site have included spark plugs, dashboard

components, fuel system components, and filter components. Currently the plant produces spark plugs and automotive fuel pumps.

## **2.12 Site Features**

The Site covers close to 68 acres with about 60 percent occupied by buildings that comprise approximately 1,800,000 square feet of floor space (Figure 2). Portions of the Site not occupied by buildings are paved or landscaped. Railroad spurs occupy portions of the eastern edge of the Site.

Process wastewater from plant operations, plus storm water collected from portions of the roof and from paved-areas (with the exception of parking areas), are collected and discharged in underground sewer lines to wastewater lift stations located on Site. Storm water from the southern parking areas of the Site flows to the municipal stormwater system. From the liftstations, wastewater is piped overhead to the WWTP located south of Robert T. Longway Boulevard near the southeast corner of the Site. The WWTP capacity is not sufficient to handle flow from large storm events; therefore, during these events stormwater overflow is directly discharged to Gilkey Creek. Treated wastewater is discharged from the WWTP to the City of Flint municipal sewer system.

According to site personnel, one active UST is located at the Site and sixteen former USTs have been removed. According to Site records, four USTs were removed from service but remain in place. These tank areas are discussed in Section III. The current and former USTs have been used for the storage of chemical, solvent, or petroleum products or waste materials. The current and former aboveground and underground storage tank locations are shown on the Site plan presented in Appendix B.

There are 11 electrical substations with PCB-containing transformers present at the Site. The locations of the PCB-transformer substations are shown on a Site plan presented in Appendix D.

There are six satellite hazardous-waste accumulation areas (SAA) located on Site. SAA locations and chemical storage areas are shown on a Site plan presented in Appendix C. Full containers of hazardous waste generated at the Site are stored for less than 90 days at the Container Storage Area, the location of which is shown on Figure 6.

## **2.13 Current Manufacturing Operations**

The following are the primary manufacturing processes conducted at the Site:

- Metal stamping
- Grinding of metal parts
- Metal machining operations using either water-soluble oil or mineral oil
- Metal finishing operations including:
  - Electroplating, including nickel, zinc, and tin plating and specialty plating
  - Chemical Conversion Coating
  - Etching
  - Washing

- Zinc Phosphating
- Urethane Gasket Forming
- Ceramic Glazing
- Ceramic Substrate Firing
- Plastic Injection Molding
- Parts Assembly

The plant also conducts a general store operation, shipping and receiving operations, equipment and plant maintenance activities, and chemical treatment of water for recirculating cooling-water systems.

## **2.14 Permits**

A Part A permit application was filed to conduct RCRA-regulated storage of hazardous waste at the Site. Hazardous wastes generated at the Site were stored on an interim-status hazardous waste storage pad between 1981 and 1988. In 1988, the storage area was closed. Plant 400 has operated under RCRA as a hazardous waste generator since 1988. With the interim clean closure of the Container Storage Area, as documented in the MDEQ letter dated 13 February 1997 (included in Appendix K), the Site operates as a generator-only facility.

## **2.15 Previous Investigations**

Clayton Group Services prepared a Documentation of Due Care Compliance dated 11 March 2000 to evaluate compliance under Section 20107a of Michigan Public Act 451 (Part 201). A facility is defined in Michigan Part 201 as a location where a hazardous substance is present "in excess of the concentrations which satisfy the requirements of section 20120a(1)(a) or (17). For purposes of the Documentation of Due Care Compliance, Clayton defined a facility as "... any area, place, or property where a hazardous substance in excess of generic residential cleanup criteria has been released, deposited, disposed of, or otherwise comes to be located." The Documentation of Due Care Compliance identified four areas which Clayton determined met the definition of a "facility" for which Due Care obligations were required: "Hexavalent Chromium Area", "Executive Garage Former UST Area", "Gridley Area of Free-Phase Oil", and "Plant 4 Former Hazardous Waste Storage Pad." These four areas are discussed in greater detail in Sections 3.1.8, 3.1.11, 3.1.13, and 3.1.26, respectively.

Documentation of a RCRA Facility Assessment (RFA) has not been identified for the Site. A Preliminary Assessment/Visual Site Inspection (PA/VSI) was performed in August 2002. This report was not available for review in the preparation for this CCR. A RCRA closure has been conducted at the Plant 4 Former Hazardous Waste Storage Pad also known as the Container Storage Area (AOI 26), and interim closure of the pad was completed on 26 September 1996. Interim closure of AOI-26 is discussed in greater detail in Section 3.1.26 of this CCR.

Investigations at several AOIs have been performed at the Site in the following areas and are discussed in greater detail in Section III:

- Cyanide Lift Station (AOI 1)
- Former Hard Chrome Plating Line (AOI 8)
- Executive Garage Tank Area (AOI 11)

- Gridley Area (AOI 13)
- Former Zinc Hydroxide Tanks (AOI 19)
- Former Stoddard Solvent Tank Area (AOI 24)
- Container Storage Area (AOI 26)
- Former Diesel UST (AOI 31)
- Groundwater – Northwest and Southeast Property Boundary Areas (AOI-48)

Summaries of the data from investigations at the above AOIs are presented in Appendices E through N.

### **III. AREAS OF INTEREST**

The purpose of this section is to present a summary of individual areas at the Site which may have had a potential for a release to the environment. The identification of these Areas of Interest (AOIs) was based on the information obtained by Haley & Aldrich during file reviews, interviews of Site personnel, and Site visits. The AOIs identified include Hazardous Waste Management Units (HWMU) and other areas identified during the development of the CCR.

The description of each AOI presented below includes a discussion of evidence of past release, historic operations, visual observations, file review results and (if available) summary of sampling results. Based on the data from this evaluation, the AOIs were evaluated to determine if additional investigation is warranted during the RFI.

The MDEQ Part 201 Generic Cleanup Criteria for several AOIs are used for comparison to available data from identified and investigated releases. Michigan Generic Cleanup residential criteria for soil and groundwater were conservatively used in this CCR to screen the data, although the Site is industrial and anticipated to remain commercial/industrial in the future.

Of the 48 AOIs identified at the Site (Figure 6), 18 AOIs were determined to warrant further investigation. The location of AOIs that warrant further investigation are shown on Figure 7.

#### **3.1 Discussion of Areas of Interest**

##### **3.1.1 AOI 1 - Cyanide Lift Station**

The Cyanide Lift Station, located in building # 4157, handled segregated cyanide- and metal-bearing wastewater streams from the various plating operations. The plant stopped utilizing cyanide chemicals in plating operations and began removal and closure of the lift station and associated underground piping in August 2000.

During removal of the underground piping, Delphi personnel collected and analyzed four soil samples from the excavation. The initial excavation was approximately 3 to 4 feet below ground surface. Sample locations are shown on Figure E1 presented in Appendix E. Soil samples were submitted for analysis of amenable cyanide and total cyanide. Results of the sample analyses, summarized in Table E1 in Appendix E, indicated that cyanide concentrations ranged from non-detect (less than the quantitation level of 0.3 milligrams per kilogram) < 0.3 mg/kg to 27.8 mg/kg. The concentration of 27.8 mg/kg, detected in the sample location #1, was above MDEQ Generic Cleanup Criteria. According to Delphi personnel, the piping and the lift station coating were intact and the cyanide detected in soil was related to a release of material during the pipe cutting and removal activities. Delphi performed additional excavation at sample location #1 to a depth of approximately one additional foot to remove contaminated soil. A confirmatory soil sample was collected from the area and submitted for analysis. Cyanide was not detected (< 0.5 mg/kg) in the confirmation sample.

No other evidence of potential releases was noted by Delphi personnel during the closure of the cyanide wastewater-handling portion of the lift station and Site personnel interviewed had no knowledge of other releases in this area.

Based on confirmation sampling during the decommissioning of the cyanide portion of the lift station and no further evidence of a release in this area, further investigation is not warranted in this area.

### **3.1.2 AOI 2 - Former Spray Booth (Building #4099)**

This above-grade painting operation Spray Booth was formerly located in Building #4099 and was identified by plant personnel during Site interviews. The former location of the Spray Booth was not discernible to Haley & Aldrich personnel during visual inspection of the area in which the spray booth was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release in this area. There have been no documented releases of subsurface contamination nor were there any visual observations of a release.

There was no evidence of a release in this area; accordingly, further investigation of the Former Paint Booth is not warranted.

### **3.1.3 AOI 3 - Former Plating Operations (Building #4099)**

The Plating Operation formerly located in Building #4099 was identified by plant personnel during Site interviews. The former location of the Plating Operation was not discernible during visual inspection of the area. The concrete in the general area was observed to be intact with no discernable cracks. Site personnel interviewed had no knowledge of a release in this area. No information was available on the condition of the spill containment and wastewater features at the time the operation was removed.

There was no evidence of a release in this area; accordingly, further investigation of the Former Plating Operations is not warranted.

### **3.1.4 AOI 4 - Former Plating Operations (Building #4101)**

The above-grade Plating Operation formerly located in Building #4101 was identified by plant personnel during Site interviews. According to Site personnel, this plating operation was moved to the west plating operations (see Section 3.1.18), Building #4100. Site personnel interviewed had no knowledge of a release in Building #4101. The footprint of the Former Plating Operation was evident during the Site visit and the concrete was observed to be intact with no discernable cracks in the general area. In addition, the Former Plating Operations were above ground.

There was no evidence of a release in this area; accordingly, further investigation of the Former Plating Operations is not warranted.

### **3.1.5 AOI 5 - Scrap Metal Collection Area**

The Scrap Metal Collection Area is located in Building #4047 and in an adjacent loading area outside the building. Metal scrap from various operations is brought to this area. The scrap metal is placed on a conveyor where excess press oil, stamping oil, and coolant are drained. Scrap metal is then placed in a roll-off box located outside of Building #4047. Scrap metal totes are cleaned with a steam cleaner located next to the conveyor. A stormwater drain captures surface run-off from the area and this drain is connected to the sewer system leading to the Delphi WWTP.

Site personnel interviewed had no knowledge of a release in this area. Slight staining in the loading area was observed; however, the concrete pavement was observed to be intact. Accordingly, further investigation of the Scrap Metal Collection Area is not warranted.

### **3.1.6 AOI 6 - Former Degreaser (Building #4082)**

This above-grade Degreaser, formerly located in Building #4082 next to the Hard Chrome Plating Line (AOI 8, described below), was identified by plant personnel during Site interviews. According to Site personnel, the degreaser was removed in the mid-1990s. Specific information on the type of degreaser or the solvent used was not available; however, plant records and Site personnel interviewed indicated that degreaser products used at the Site included methylene chloride, 1,1,1-trichloroethane (1,1,1-TCA) or trichloroethylene (TCE).

The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release in this area. There was no evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

### **3.1.7 AOI 7 - Former Zinc Die Cast Area (Building #4082)**

The Zinc Die Cast operation was formerly located in Building #4082. The area is identified on plans dating back to 1970. According to Site personnel, the operations were discontinued sometime between the late 1970s and the early 1980s. The operation reportedly involved the melting of zinc metal stock and the casting of parts.

The area is currently used for storage of equipment and is not active in Site processes. Site personnel interviewed had no knowledge of a release in this area. The concrete was observed to be intact with no discernable cracks in the general area. A large pit that formerly held the die-cast equipment is present. In order to evaluate the pit integrity, the pit was cleaned and inspected on 23 November 2002. Haley & Aldrich observed the pit to be in good condition with no visible cracks or evidence of leakage.

No further investigation of the Former Zinc Die Cast Area is warranted.



### **3.1.8 AOI 8 - Former Hard Chrome Plating Line (Building #4082)**

The Former Hard Chrome Plating Line was identified as an area of interest in the Documentation of Due Care Compliance. The Hard Chrome Plating Line was installed in 1967 and operations were ceased in the mid-1990's. The area consists of a concrete pad, containment trenches, and two subgrade fiberglass-lined concrete vaults used to hold plating-related materials.

On June 1, 1987, it was reported that a release of chromic acid from an unknown source had occurred to a storm sewer (WC51) that was connected to the WWTP. In 1992, an investigation to determine potential sources of the hexavalent chromium detected in the storm sewer was conducted. The investigation included a soil and groundwater sampling program around the Hard Chrome Plating Line and along associated underground piping. The investigation identified hexavalent chromium in soil samples collected in shallow soil along an abandoned process line. The concentrations of hexavalent chromium were documented as "none detected," "very trace," or "detected," therefore, there has been no comparison to MDEQ Generic Clean-up Criteria. A summary of previous sampling locations and a summary of the soil sample results are presented in Appendix F.

Routine sampling of the storm sewer sump WC51 has been performed since 1986 and concentrations of hexavalent chromium have fluctuated from non-detect to 150 mg/L. After the Hard Chrome Plating operations were discontinued, the concentrations of hexavalent chromium in the storm sewer ranged from non-detect to 0.2 mg/L.

The Documentation of Due Care Compliance identified a maximum concentration of hexavalent chromium in groundwater at 140 mg/L. However, the groundwater concentrations cited appear to have been based on an interpretation that the stormwater sampling results were representative of groundwater. Other specific documentation of hexavalent chromium in groundwater was not identified by Haley & Aldrich during personnel interviews and environmental file reviews.

Further investigation of the Former Hard Chrome Plating area is warranted.

### **3.1.9 AOI 9 - Barrel, Rack, and U1 Plating Lines**

The Barrel, Rack and U1 Plating Lines are located in Buildings #4051 and #4050, west of the former Hard Chrome Plater (AOI 8). Based on Site plans and interviews with Site personnel, plating operations began in this area in the 1950s. The operations currently conducted in this area include nickel, zinc, copper, and tin plating. Each plating line is contained within a trenched network. The trenches and process lines are connected to a series of wastewater sumps. Metal-bearing process wastewater from the plating area is transferred to the WWTP segregated from other process waste. Visual inspection of the trenches and sumps was not possible during the Site visit.

Further investigation of the Barrel, Rack, and U1 Plating Lines is warranted.

### 3.1.10 AOI 10 - Power Wash Booth

The Power Wash Booth is located in Building #4040. Based on interviews with Site personnel, the Power Wash Booth is used to clean a variety of plant equipment. The concrete was observed to be intact with no discernable cracks in the Power Wash Booth. A sump is located in the southeast corner of the Power Wash Booth. In order to evaluate the sump integrity, the sump was cleaned and inspected on 23 November 2002. Haley & Aldrich observed the sump to be in good condition with no visible cracks or evidence of leakage.

No further investigation of the Power Wash Booth is warranted.

### 3.1.11 AOI 11 - Executive Garage Area

The Executive Garage area was identified as an area of interest in the Documentation of Due Care Compliance. The Executive Garage is located in Building #4070 on the west side of the main manufacturing facility. Previous investigations of releases of petroleum products were performed at former USTs located in the outdoor areas surrounding the Executive Garage.

The five USTs (Tanks #4007, 4034, 4035, 4036, and 4039) were utilized for gasoline storage. Tanks 4007, 4034, 4035, and 4036 were removed from the Site. According to Site records, Tank 4039 was filled in place with sand. Site records for the five UST's include the following information:

Tank #	Volume (gallons)	Content	Notes
4007	4,000	Gasoline	Closure Letter MDEQ 5 Sept. 1996
4034	2,000 <sup>†</sup>	Gasoline	Removed 13 July 1989
4035	2,000 <sup>†</sup>	Gasoline	Removed 13 July 1989
4036	2,000 <sup>†</sup>	Gasoline	Removed 13 July 1989
4039	NA	Gasoline	Filled in place & removed from service 1978

Notes and Abbreviations:

- <sup>†</sup> Conflicting records indicate a 4,000-gallon capacity.

The approximate locations of the tanks, a summary of previous sampling locations and results and a comparison of previous results to applicable MDEQ Generic Cleanup Criteria are presented in Appendix G. A summary of the history of the five USTs and the previous investigations performed in this area is presented below.

#### Tanks 4034, 4035, and 4036

Based on Site records, UST 4034, 4035, and 4036 were discovered in July 1989 during a re-paving project on the north side of the Executive Garage. (A plan showing the approximate locations of the former tanks are presented in Appendix G.) The tanks were reported to have been installed in the 1920s and removed from service in 1963. The tanks were removed in July 1989. Two hundred and twenty cubic yards of additional soil from around the tanks were excavated from a 25-foot long by 25-foot

wide and 11-foot deep excavation. Confirmatory soil and groundwater samples were collected from the tank excavations in 1989. Sample results indicated the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil, but were less than the MDEQ Generic Cleanup Criteria. BTEX was not detected in the groundwater sample from the bottom of the excavation. Sample locations are summarized in Appendix G on Figure G1. Soil and groundwater analytical results are summarized and compared to MDEQ Generic Cleanup Criteria in Appendix G. Since the contaminants in soil remaining after excavation were below cleanup criteria and there was no apparent impact to groundwater, further investigation of this area is not warranted.

#### Tank #4007

In January 1991 a potential release from Tank 4007 was indicated by the tank system's line-leak detector. The tank was pressure-tested and results indicated that the tank was "tight," but the leak detector continued to indicate a potential release. The tank failed a second pressure test and was removed from service in January 1991. The suspected release was reported to the State Fire Marshall in January 1991 and the tanks and associated underground piping were removed in February 1991.

Environmental Consulting & Technology, Inc. (ECT) excavated soil from around the UST pipeline trench as shown on Figure G2 in Appendix G. The final excavation was approximately 50-feet long by 25-feet wide and 12- to 13-feet deep. Field PID screening of the excavation detected volatile organic compounds (2,500 parts per million (ppm)) along the southern portion of the west wall of the excavation. Additional excavation to the west was not possible due to the potential structural impact to the Executive Garage.

ECT collected and submitted eight soil samples from the floor and walls of the excavation and one water sample from the floor of the excavation for analysis of BTEX, and methyl-tert-butyl ether (MTBE). The results of the soil and water analysis are summarized and compared to MDEQ Generic Cleanup Criteria in Appendix G in Table G1 and Table G2, respectively.

Due to the elevated concentrations of BTEX and MTBE in groundwater, ECT installed an underdrain system in the excavation. Delphi pumped from this underdrain system and the effluent was discharged to the Site WWTP. In addition, ECT installed a "Bioremediation Infrastructure" to address soil levels of BTEX.

ECT performed subsequent subsurface investigations and implemented remedial actions and a Tier I evaluation and closure of Tank 4007. A summary of soil and groundwater analytical data and comparison to MDEQ Generic Cleanup Criteria is provided in Appendix G in Tables G1 and G2, respectively. However, concentrations of BTEX greater than MDEQ Generic Cleanup Criteria continued to exist in soil and groundwater. The approved closure of Tank #4007 included the placement of industrial groundwater use restrictions on the area utilizing institutional controls. The approximate area of the groundwater use restriction is shown on Figure G1 in Appendix G. A copy of the MDEQ's response to the closure documentation and a copy of the "Corrective Action Notice to Register of Deeds" are included in Appendix G. Based on

this restriction of industrial groundwater use, remaining soil concentrations (Appendix G) are less than applicable industrial MDEQ Generic Criteria. Therefore, further investigation in this area is not warranted.

#### Tank #4039

Based on Site records, Tank 4039 was closed in place by filling with sand in 1978. No closure samples were collected. The condition, integrity, and content of Tank #4039 prior to filling is unknown and the area of groundwater use restriction appears to border the downgradient area in which Tank #4039 was reported. The exact location of Tank #4039 was not apparent during the Site visit.

Further investigation of Tank #4039 in the Executive Garage Tank Area is warranted.

### **3.1.12 AOI 12 - Paint Booth and Paint Storage Building**

The Paint Booth and associated Paint Storage Building (AOI 12) is located in Building #4040/4041. The Paint Booth was installed in the late 1990's. Neither staining nor deteriorated concrete were evident in or around the Paint Booth and the Paint Storage Building during the Site visit. Site personnel interviewed had no knowledge of a release in this area.

There was no evidence of a release in this area; accordingly, further investigation of the Paint Booth and Paint Storage Building is not warranted.

### **3.1.13 AOI 13 - Gridley Area**

The Gridley Area was identified as an area of interest in the Documentation of Due Care Compliance. The Gridley Area is located in Building #4041, north of the former Power House. Operations in the Gridley Area involve metal machining operations. Scrap metal chips from the Gridley Area machining operations are collected and transported through a pipe along the roof to the chip collection area in the Automatic Screw Machine Basement (AOI 23).

Two tanks (#4005 and #4057) are associated with the Gridley Area. Tank #4005 was a 6,000-gallon underground storage tank used to store Clear Tex (a petroleum-based product). Tank #4005 was removed from service in December 1990 and replaced by Tank #4057, a 2,000-gallon above-ground storage which is used to store MTJ 468 Cutting Oil. In October 1991, an investigation of potential releases from Tank #4005 indicated the presence of BTEX and total petroleum hydrocarbons (TPH) (9,000 mg/kg to 80,000 mg/kg) in soil samples. Sample results are summarized and compared to MDEQ Generic Cleanup Criteria in Appendix H.

Sampling of the monitoring wells in November 1991 indicated the presence of benzene, toluene, and xylenes in groundwater. Re-sampling of monitoring wells in February 1992 detected Light Non-Aqueous Phase Liquid (LNAPL) in one monitoring well. Samples of oils used in machining operations exhibited similar chromatographic signatures to that of the LNAPL encountered in the well. Based on groundwater

elevations measured in June and September 1993, ECT concluded that groundwater flow direction under the Gridley Area was to the northeast. ECT estimated the total volume of LNAPL beneath the Gridley area at 37,000 gallons.

ECT installed five free product recovery wells and approximately 14 monitoring wells in the Gridley area. Soil concentrations of metals, BTEX and Polynuclear Aromatic Hydrocarbons (PAHs) were less than Michigan Generic Cleanup Criteria (or Statewide Default Background for certain metals). Groundwater concentrations for BTEX, MTBE, and PAHs were less than MDEQ Generic Cleanup Criteria. Free product remains beneath the Gridley area.

Although the groundwater does not appear to be impacted by hazardous waste or hazardous constituents, free product remains in the area; accordingly, a Free Product Evaluation and Recovery Interim Measure will be implemented.

#### **3.1.14 AOI 14 - Phosphater**

The Phosphater is located in Building #4081. According to Site personnel, the phosphater process involves the treatment of metal parts using iron- and nickel-sulfate cleaners and sulfuric acid. Wastewater from the phosphater was collected in an on-Site process sewer that transported material to the Delphi WWTP. In the mid-1990's, the process sewer line from the phosphater was discovered to be corroded beneath Building #4081. The sewer line was lined and repaired in place. An investigation on the potential impact of the sewer line on the subsurface was not performed.

Further investigation of the Phosphater process sewer is warranted.

#### **3.1.15 AOI 15 - Roto-Headers Department**

The Roto-Headers Department is located in Building #4081. This department produces spark plug components using a cold heating process. During the Site visit, oil was observed on the concrete floor as a result of overflows from machinery drip pans. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release to the environment in this area. After Site personnel were made aware of this situation, they commenced activities to correct the issue.

Because there was no evidence of a release to the environment in this area, further investigation of the Roto-Headers Department is not warranted.

#### **3.1.16 AOI 16 - Udyllite Plating**

The Udyllite Plating or spark plug blackener is located in Building #4081. The process uses Pentrate LM to generate a black oxide coating on spark plug components. The composition of Pentrate LM includes 30-40% sodium hydroxide, water and sodium nitrate. In addition to the Pentrate LM, the process can include the use of a sulfuric or hydrochloric acid wash. Approximately 1,690 lbs. of caustic sludge waste is generated

per year by the process and is collected and disposed at an off-site landfill. Wastewater from the process is sent to the Delphi WWTP.

According to Site personnel, spills within the containment and trench system around the Udyllite plater have occurred. During the Site visit, deteriorated concrete within the containment pad and trench system was noted.

Further investigation of the Udyllite Plater is warranted.

### **3.1.17 AOI 17 - Nickel Plating Line**

The Nickel Plating Line which includes two nickel platers (north and south) is located in Building #4094. According to Site personnel, the nickel plating lines were installed in the early 1980s. The plating lines are contained on a raised platform and trench system. Small deposits of green salts were observed on the west side of the plating platform during the Site visit. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release in this area.

There was no evidence of a release in this area; accordingly, further investigation of the Nickel Plating Line is not warranted.

### **3.1.18 AOI 18 - Zinc Dichromate Plating Lines (West Plating Lines)**

The Zinc Dichromate Plating Lines are located in Building #4100. There were formerly three Zinc Dichromate Plating Lines in operation up to the early 1990s. One of the plating lines has been removed. Two of the plating lines remain but are no longer in service. Site personnel had no knowledge of a release in this area except as noted below (AOI 19). Based on visual observations during the Site visit, the concrete pads and containment trenches appeared intact. A plating waste sump was identified within the containment area but inspection of the sump was not feasible during the Site visit.

Further investigation of the Zinc Dichromate Plating Lines is warranted.

### **3.1.19 AOI 19 - Former Zinc Hydroxide Tanks**

USTs #4008, #4009, and #4010 were located west of the Building #4100 between the Plant and Dort Highway. The 6,000-gallon capacity tanks stored zinc hydroxide used in the zinc dichromate plating process (AOI 18).

Tank # 4009 was removed in 1986 after failing a Petro-Tite tank test. UST #4009 was located between tanks #4008 and #4010. Tanks #4008 and #4010 were removed in June and July of 1989 as part of remedial actions resulting from an 800-gallon zinc hydroxide spill. According to site records, the spill represented a release of up to 85 pounds of zinc.

The following is a summary of information presented in the 28 November 1989 *Underground Storage Tank Closure, AC Rochester Tanks #4008 and #4010* report,

prepared by Techna Corporation. Sample location diagrams and a summary of sampling and analysis data are attached in Appendix I.

The removal of tanks #4008 and #4010 involved the additional excavation of impacted soil. This included soils located in the former UST #4009 location. All accessible impacted soils were excavated and removed for disposal off site at a Type II, non-hazardous-waste facility. The extent of the soil excavation was limited to the east, west and south by the presence of buildings, trees, and/or safety concerns related to the potential for soil collapse and cave-in.

Soil samples were collected and analyzed from each of the four excavation walls and from four locations on the excavation floor to assess the condition of the tank excavation. The sample analysis results indicated that total zinc was present in area soils at levels ranging between 14 and 200 ppm. These concentrations were less than MDEQ Generic Cleanup Criteria; accordingly, further investigation of the Former Zinc Hydroxide Tanks is not warranted.

### **3.1.20 AOI 20 - Former Degreaser (Building #4091)**

According to Site personnel, this above-grade Degreaser was formerly located along the northern wall of Building #4091. Building #4091 is currently utilized as an auditorium. According to Site personnel, the degreaser used methylene chloride and was removed prior to 1995. Plant records indicate that Tank #4031, which was located near the former degreaser, was a 1,625-gallon above-ground storage tank that used to store 1,1,1-trichloroethane. Site records also indicate that at the time the tank was removed in 1992, it stored freon.

Site personnel did not have knowledge of a release from the Degreaser or from Tank #4031. The former location of the degreaser was not discernible to Haley & Aldrich personnel during visual inspection of the area. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

### **3.1.21 AOI 21 - Used Oil UST (Tanks #4032 and #4033)**

Tanks #4032 and #4033 are located beneath Building #4091. This building is currently used as an auditorium. According to Site records, Tanks #4032 and #4033 are 3,000-gallon and 10,000-gallon capacity, respectively. Tank #4032 was used to store ClearTex. According to Site personnel, Tank #4033 may have been utilized to store used oil but was filled with concrete in 1980. The current condition of the tanks is unknown.

Further investigation of the Used Oil UST area is warranted.

### **3.1.22 AOI 22 - Chip Collection Area**

The Chip Collection Area is located between Buildings #4107 and #4100. The Chip Collection Area is used to collect metal chips from the machining operations at the Gridley Area (AOI 13) in Building #4141 and the Automatic Screw Machines located in Building #4107 and #4133. Chips from these machining operations are transported in piping extending along the roof to the Chip Collection Area which is an open tractor-trailer located in a gravel covered alcove between the buildings. According to Site personnel, this area has been used to collect chips for over 25 years. Staining was noted on the gravel around the chip collection trailer.

Further investigation of the Chip Collection Area is warranted.

### **3.1.23 AOI 23 - Automatic Screw Machine Basement**

The Automatic Screw Machine Basement is located in Building #4133. The basement area is used to collect and distribute lubricating oils from the screw machines located on the main floor of Building #4133. During the Site visit, an oil seep was noted along the southern wall of the basement. It is noted that the Chip Collection Area (AOI 22) is located adjacent (southwest) of the Automatic Screw Machine Basement. Two sumps are located in the basement along the southeast and southwest walls and could not be observed during the Site visit.

Further investigation of the Automatic Screw Basement is warranted.

### **3.1.24 AOI 24 - Former Stoddard Tank Area (Tanks #4024 and #4025)**

The former new (Tank #4024) and used (Tank #4025) Stoddard solvent tanks were previously located in the northeast portion of the Site between Buildings #4133 and #4158. Both 3,000-gallon capacity tanks were removed from the Site in July 1992.

A release from the tanks was discovered during tank excavation. The release was reported to the State of Michigan on 6 July 1992. A *20-Day Initial Abatement Report* was prepared to detail the release and outline proposed excavation and initial abatement activities. This report was submitted to the Michigan DNR on 16 July 1992.

A *45-Day Site Characterization Report & Contamination Assessment Work Plan*, dated 18 August 1992, was prepared and submitted to the MDEQ. The report described tank excavation activities, excavation-wall soil sampling, and excavation-floor groundwater sampling. Analysis results for these samples indicated that some Site soil and groundwater were impacted at levels exceeding regulatory criteria.

To address the observed contamination, a groundwater-collection and extraction system was constructed in the excavation before it was backfilled. The remediation system allowed for the collection of contaminated excavation waters and passive remediation of impacted soils. Three groundwater-monitoring wells were installed around the former tank area to monitor performance of the collection system and the horizontal extent of groundwater impact. These activities are discussed in the 13 September 1993



*Contamination Assessment Report and Corrective/Remedial Action Work Plan* submitted to the MDEQ.

The groundwater extraction system operated between the fall of 1993 and February 1995. The system was periodically cycled off and on to allow groundwater to refill the excavation backfill and passively remediate impacted soils. Periodic monitoring of the system effluent demonstrated that the groundwater remedial actions were successful. Successful remediation of soils was then demonstrated by the advancement of four soil borings in areas where contaminated soils had previously been observed. The justification for final closure of the tanks was provided in the 11 July 1995 *Underground Storage Tank Closure Verification Report* submitted to the MDEQ.

The MDEQ concurred that tank excavation and response activities were successful in remediating the contamination associated with the former tanks. Permanent closure for the two tanks was granted by the MDEQ in a letter dated 18 July 1995 (Appendix J).

The locations of soil and groundwater samples are shown on a Site plan in Appendix J. A summary of soil and groundwater data and comparison to the MDEQ Generic Cleanup Criteria is provided in Appendix J. Final excavation confirmatory soil samples (B4, B5 & B6) were less than MDEQ Generic Cleanup Criteria. Groundwater samples collected from the recovery well and surrounding monitoring wells in March and April of 1995 were less than MDEQ Generic Cleanup Criteria.

There was no evidence of a further release in this area; accordingly, further investigation of the Former Stoddard Solvent Tank Area is not warranted.

### **3.1.25 AOI 25 - Former Fire Training Area**

The Former Fire Training Area is located east of Building #4175 at the edge of a concrete pad. According to Site personnel, the concrete area was used to demonstrate and train Site personnel in the use of fire extinguishers. Site personnel did not have knowledge of specific fire training activities or the potential for a release in this area. No evidence of a release was observed during the Site visit. Fire Department personnel were not available for interview to determine how residual materials from training exercises were handled.

Further investigation of the Former Fire Training Area is warranted.

### **3.1.26 AOI 26 - Container Storage Area**

The Container Storage Area is located in the southeastern portion of the Site east of Building #4046. It was constructed in the 1940s and has been in continuous use for container storage since that time. The storage area was used primarily for the storage of drums and smaller containers of hazardous wastes prior to transportation for disposal off-site. Materials stored included ignitable and corrosive liquids, waste paints and paint sludges containing metals and hydrocarbon solvents, waste chlorinated solvents, and nickel-, cyanide- and cadmium-containing materials.

The Container Storage Area was used for interim-status hazardous-waste storage between 1981 and 1988. In 1988, it was decided to close the storage area instead of obtaining a Part B permanent status RCRA permit. The storage area is now used as a less-than-90-day-storage area for hazardous wastes.

Closure of the Container Storage Area consisted of decontamination of the storage pad and staging areas. This was followed by a sampling and analysis program to determine if waste management practices during the interim status period resulted in soil and/or groundwater impact.

Results of the assessment (presented in Appendix K) indicated the presence of VOC contamination in soils and groundwater near the storage area greater than MDEQ Generic Cleanup Criteria. Contamination was found in soils under concrete structures and in groundwater. Results suggested that at least some of the observed impact was the result of waste management activities. The groundwater contamination was found to be limited to the uppermost saturated zone. There was no evidence to suggest that a lower saturated zone, located under 10 to 14 feet of confining clay, was adversely impaired.

Further investigation of the Container Storage Area is warranted.

It is understood that the MDEQ will allow closure of the Container Storage Area to be completed under the VCA Agreement between Delphi and U.S. EPA Region V.

### **3.1.27 AOI 27 - Pump House/Lift Station and Eastern Process Sewer**

The process wastewater sewer Pump House and Lift Station is located at Building #4171. According to Site personnel, a depression was forming on the south side of the Lift Station due to a damaged sewer line. In addition, in the mid-1990s approximately 100 yards of process wastewater sewer line north of the Lift Station was discovered to be corroded. The sewer was lined and repaired in place. The potential of a release from the process wastewater sewer line prior to repair was not investigated.

Further investigation of the Pump House/Lift Station and Eastern Process Sewer is warranted.

### **3.1.28 AOI 28 - Molybde Line**

The Molybde Line is located in Building #4081. The Molybde operations were above grade and utilized molybdenum disulfide as a water soluble lubricant for the extrusion of spark plug components. According to Site personnel, the Molybde operations began in the mid-1960's and were discontinued in 1992. Site personnel that were interviewed had no knowledge of a release associated with the operations. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Molybde Line is not warranted.

### **3.1.29 AOI 29 - Former Paint Booth (Building #4094)**

According to Site personnel, a Paint Booth was formerly located in Building #4094. The former location of the Paint Booth was not discernible during the Site visit to the area in which the Paint Booth was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release associated with the former Paint Booth.

There was no evidence of a release in this area; accordingly, further investigation of the Former Paint Booth is not warranted.

### **3.1.30 AOI 30 - Former Degreaser (Building #4094)**

According to Site personnel, an above-grade Degreaser was formerly located west of the Nickel Plating Line in Building #4094. Site personnel were uncertain as to the material used by the Degreaser and had no knowledge of a release associated with the former Degreaser. The former location of the Degreaser was not discernible during the Site visit. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

### **3.1.31 AOI 31 - Former Diesel UST Area (Tank #4052)**

According to Site records, a 500-gallon UST was located between Buildings #4131 and #4095. The tank was used to store diesel oil. The tank was removed in December 1989, at which time six soil samples were collected from the excavation and analyzed for BTEX. Sample locations are shown on a Site plan in Appendix L. The sample results are summarized and compared to MDEQ Generic Cleanup Criteria in Appendix L. The soil sample results were less than MDEQ Generic Cleanup Criteria. However, PAHs were not analyzed and may be more appropriate indicators of potential releases of diesel oil.

Further investigation of the Former Diesel UST Area is warranted.

### **3.1.32 AOI 32 – Terminal-Post (T-Post) Oil Collection System**

The T-Post area, located in Building #4094, produces electrical connector components for spark plug production. The T-Post Oil Collection System has a lubricating oil collection and distribution trench system and associated sump in the floor which is connected to an underground storage tank. Site personnel had no knowledge of a leak or a release from the oil collection system. In order to evaluate the sump integrity, the sump was cleaned and inspected on 23 November 2002. Haley & Aldrich observed the sump to be in good condition with no visible cracks or evidence of leakage.

No further investigation of the T-Post Oil Collection System is warranted.

### **3.1.33 AOI 33 - Former Conformal Coating Operations**

According to Site personnel, a Conformal Coating Operation was formerly located in Building #4100. The above-grade Conformal Coating Operation used xylene as a carrier solvent to treat circuit boards used in cruise control modules with a Conformal coating. According to Site personnel, the operations were removed in approximately 1996. Site personnel interviewed had no knowledge of a release associated with the Conformal coating operations. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Former Conformal Coating Operations is not warranted.

### **3.1.34 AOI 34 - Former Paint Booth (Building #4080)**

According to Site personnel, a Paint Booth was formerly located in Building #4080. The former location of the Paint Booth was not discernible during the Site visit to the area in which the Paint Booth was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release associated with the former Paint Booth.

There was no evidence of a release in this area; accordingly, further investigation of the Former Paint Booth is not warranted.

### **3.1.35 AOI 35 - Former Glass Frit (Building #4128)**

According to Site personnel, the Glass Frit operation was formerly located in Building #4128. The glass frit operations utilized several types of glass seal powder. The various glass seal powders contained metals including up to 2% antimony, 25% aluminum, 45% iron, and 65% copper. Site personnel observed glass seal powder stored in the building and on the ground surface outside of the building. The area surrounding Building #128 is paved and the paving was observed intact. Surface water run-off is collected in storm water drains connected to the WWTP.

There was no evidence of a release to the environment; thus, further investigation of the Former Glass Frit Area is not warranted.

### **3.1.36 AOI 36 - Former Paint Booth (Building #4128)**

According to Site personnel, a Paint Booth was formerly located in Building #4128. Site personnel interviewed had no knowledge of a release associated with the former Paint Booth. The location of the former Paint Booth was not discernible and the concrete was observed to be intact with no discernable cracks in the general area.

Further investigation by visual inspection of the former Paint Booth is not warranted.

### **3.1.37 AOI 37 - Former Used Viscor UST & Sump Collection System**

Tanks 4053 & 4054 and the associated Sump Collection System are located east of Building #4100. The tanks are 3,000-gallon capacity and stored Viscor 381 (Tank 4053) and used Viscor 381 (Tank 4054), a product used in the testing of fuel pumps. Used Viscor 381 was collected from the fuel pump testing area via underground piping connected to a sump housed in the northeast corner of Building #4100. The used Viscor 381 was then piped over the roof to Tank 4054.

Tank 4054 was managed as a Generator Underground Storage Tank under MDEQ Hazardous Waste Management regulations. Tank 4054 was cleaned and removed from service in September 1997. The MDEQ approved the closure of Tank 4054 as a Generator Underground Storage Tank in a letter dated 16 June 1998 (Appendix M). Tank 4053 is still used to store virgin Viscor 381. Site personnel interviewed had no knowledge of a release associated with the tanks or collection system. However, the sump was not accessible for visual inspection during the Site visit.

Further investigation of the Former Used Viscor UST & Sump Collection System is warranted.

### **3.1.38 AOI 38 - Former Degreaser (Building #4133)**

According to Site personnel, an above-grade Degreaser was formerly located in Building #4133. Site personnel were uncertain as to the material used in the Degreaser and had no knowledge of a release associated with the Former Degreaser. The former location of the Degreaser was not discernible during the Site visit to the area in which it was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

### **3.1.39 AOI 39 - Former Degreaser (Building #4107)**

According to Site personnel, an above-grade Degreaser was formerly located in Building #4107. Site personnel were uncertain as to the material used in the Degreaser and had no knowledge of a release associated with the former Degreaser. The former location of the Degreaser was not discernible during the Site visit to the area in which it was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area.

There was no evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

### **3.1.40 AOI 40 - Former Oleum UST (Tank #4023)**

According to Site records, a 10,000-gallon UST that contained Oleum, which was used as a lubricant for the extrusion of fuel filters, was located east of Building #4050. Site

records indicate that the tank was removed in the 1960's. Site personnel interviewed had no knowledge of a release from the Former Oleum UST. However, the condition of the UST at the time of removal is unknown.

Further investigation of the Former Oleum UST is warranted.

#### **3.1.41 AOI 41 - Former Paint Booth (Building #4040)**

According to Site personnel, a Paint Booth was formerly located in Building #4128. The Paint Booth was removed in the late 1990's and replaced with a new Paint Booth and Paint Storage Building (see AOI 12, Section 3.2.12). The former location of the Paint Booth was not discernible during the Site visit to the area in which it was reported to have been located. The concrete was observed to be intact with no discernable cracks in the general area. Site personnel interviewed had no knowledge of a release associated with the Former Paint Booth.

There was no evidence of a release in this area; accordingly, further investigation of the Former Paint Booth is not warranted.

#### **3.1.42 AOI 42 - Former Degreaser (Building #4060)**

According to Site personnel, an above-grade Detrex 10750-S Degreaser was formerly located in the Building #4060 tool room. According to Site records, the Degreaser was installed in 1974 and utilized 1,1,1-trichloroethane. Site personnel interviewed had no knowledge of a release associated with the Former Degreaser. The concrete was observed to be intact with no discernable cracks in the general area.

There was not evidence of a release in this area; accordingly, further investigation of the Former Degreaser is not warranted.

#### **3.1.43 AOI 43 - PCB-Containing Transformers**

Based on Site records there are 22 PCB-containing transformers located in 11 substations. The locations of the substations with PCB-containing transformers are shown on a plan in Appendix D. Site personnel interviewed indicated that there may have been small leaks from PCB-containing transformers in the past but that these were properly cleaned and contained. No evidence of releases was observed during the Site visit.

There was no evidence of a release in this area; accordingly, further investigation of the PCB-Containing Transformers is not warranted.

#### **3.1.44 AOI 44 - Satellite Accumulation Areas**

According to Site records there are six satellite accumulation areas (SAA) at the Site. These SAA's are identified herein as AOI 44. The locations of the SAA's are shown on a plan in Appendix C and include:

- Construction Shop Painters SAA
- Blackener Hazardous Waste SAA
- Division 51-11 Hazardous Waste SAA
- Division 75 Hazardous Waste SAA
- Barrel House Yard SAA
- Division 54-01 Hazardous Waste SAA

No evidence of potential releases from these SAAs was observed during the Site visit, and the concrete in the general area of the SAAs was observed to be intact. Site personnel interviewed had no knowledge of a release from the SAAs.

There was no evidence of a release in this area; accordingly, further investigation of the Satellite Accumulation Areas is not warranted.

#### **3.1.45 AOI 45 - Compactor**

The below grade Compactor is located in Building #4085 near the by-products area. This Compactor crushes scrap metal for recycling. Small amounts of oil periodically accumulate in the bottom of the vault. The oil drains to a collection sump in the vault where it is pumped into a 330-gallon portable tank (tote).

According to Site records, the oil in the tote was sampled and PCBs were detected in the samples. These results prompted sampling of the vault floor and PCBs were detected in these wipe samples. A release was reported to the National Response Center (NRC) on October 31, 1996. Several rounds of cleaning of the vault and sump and subsequent wipe sampling took place in November 1996. However, the extent of PCB contamination, if any, beyond the vault and sump of the Compactor was not determined.

Further investigation of the Compactor is warranted.

#### **3.1.46 AOI 46 – Lead Solder Booth**

Site records identified lead waste generated from a Lead Solder Booth. According to site personnel, a lead solder booth was present in Building #4088. Site personnel indicated that the solder booth was used for routine maintenance and was not associated with a production line. Site personnel had no knowledge of a release in this area.

There was no evidence of a release in this area; accordingly, further investigation of the Lead Solder Booth is not warranted.

#### **3.1.47 AOI 47 – Zyglo Line**

The Zyglo Line is located in Building #4094. The line is used to test spark plug components for cracks using a water-soluble dye. Site personnel had no knowledge of a release in this area and based on visual observations during the Site visit, the concrete and collection system were intact.

There was no evidence of a release in this area; accordingly, further investigation of the Zyglo Line is not warranted.

### **3.1.48 AOI 48 – Groundwater – Northwest and Southeast Property Boundary Areas**

As previously discussed in Section 2.7, chlorinated solvents were detected in groundwater samples from monitoring wells at the northwest and southeast property boundary. Based on concentrations detected in monitoring wells (Appendix N -Table N1) and inferred groundwater flow direction (Figure 4 and Figure 5), Delphi filed a precautionary Notice of Migration to the MDEQ as required by Michigan Part 201.

Subsequent Geoprobe® groundwater sampling investigation in September 2001 confirmed concentrations of TCE, DCE and vinyl chloride above Michigan Part 201 Generic Cleanup Criteria beyond the Site property boundary along the northwest corner of the Site (Appendix N, Figure N-1 and Table N2 and Table N3).

Subsequent Geoprobe® groundwater sampling investigation in September 2001 along the southeast corner of the Site indicated contaminants at the Site boundary; however chlorinated compounds were not detected beyond the site property boundary above Michigan Part 201 Generic Cleanup Criteria (Appendix N, Table N2 and Table N3). Analytical data from the September 2001 Geoprobe® groundwater and soil sampling event at the northwest and southwest corners of the Site are summarized in Table N2 and Table N3, respectively.

Further investigation of the groundwater in the northwest and southeast areas of the property boundary is warranted.



## REFERENCES

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23. Techna Corp., 1992. Site Characterization Report & Contamination Assessment Work Plan (Tank #4024 & #4025). 11 July 1995
24. Techna Corp., 1995. Underground Storage Tank, Closure Verification Report Former Hydraulic Oil Tank 4001. 17 October 1995.
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TABLE 1  
AREAS OF INTEREST  
FLINT-EAST, PLANT 400  
FLINT, MICHIGAN

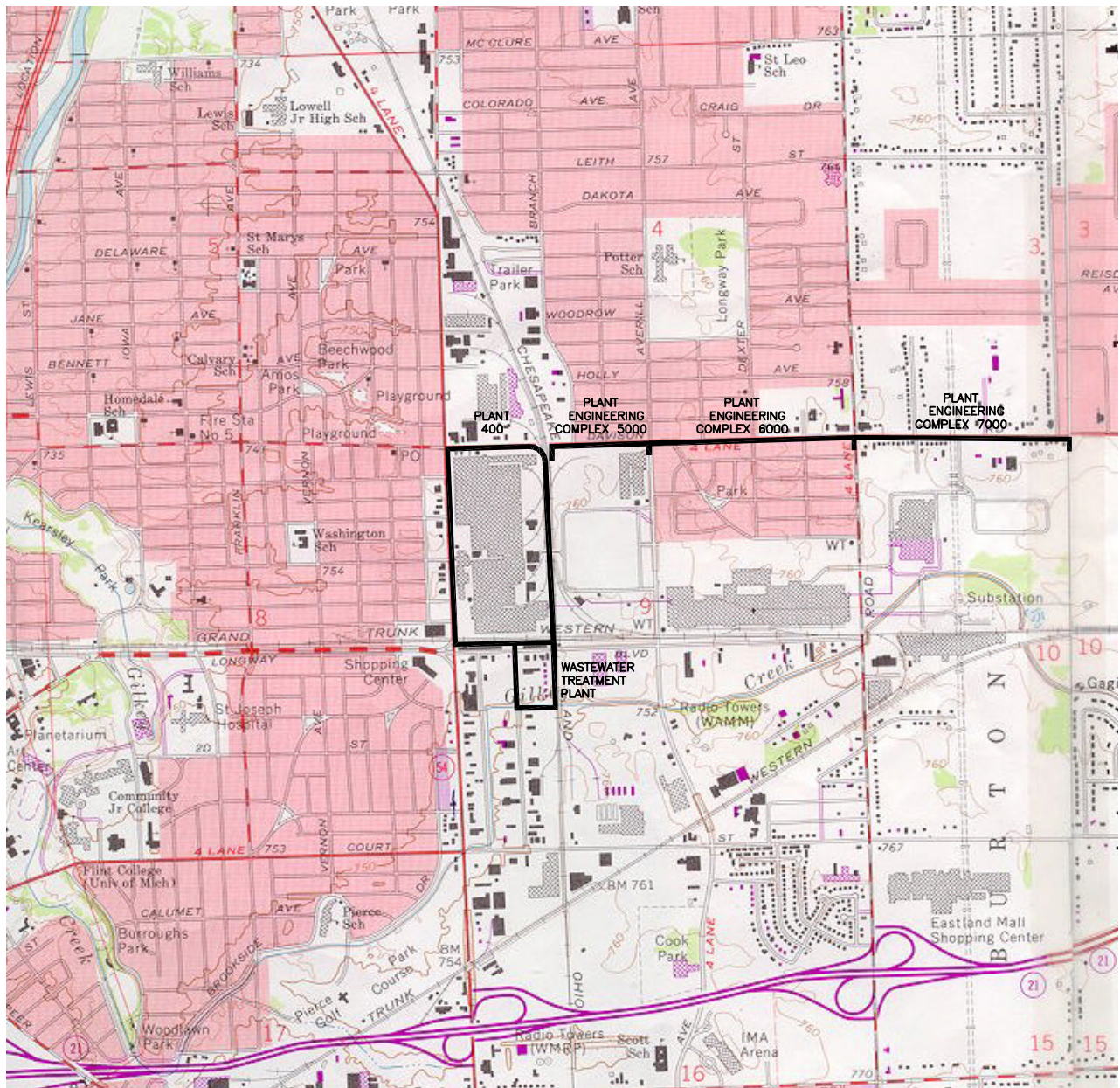
AOI Designation		Building or Site Location
AOI-1	Cyanide Lift Station	4157
AOI-2	Former Spray Booth	4099
AOI-3	Former Plating Operations	4099
AOI-4	Former Plating Operations	4101
AOI-5	Scrap Metal Collection Area	4047
AOI-6	Former Degreaser	4082
AOI-7	Former Zinc Die Cast Area	4082
AOI-8	Former Hard Chrome Plating Line	4082
AOI-9	Barrel, Rack, and U1 Plating Line	4051/4050
AOI-10	Power Wash Booth	4040
AOI-11	Executive Garage	4070
AOI-12	Paint Booth and Paint Storage Area	4040/4041
AOI-13	Gridley Area	4041
AOI-14	Phosphater	4081
AOI-15	Roto-Header Department	4081
AOI-16	Udylite Plating	4081
AOI-17	Nickel Plating Line	4094
AOI-18	Former Zinc Dichromate Plating Lines (West Plating Lines)	4100
AOI-19	Former Zinc Hydroxide Tanks	4100
AOI-20	Former Degreaser	4091
AOI-21	Used Oil UST Tanks #4032 and #4033	4091
AOI-22	Chip Collection Area	4141
AOI-23	Automatic Screw Machine Basement	4133
AOI-24	Former Stoddard Tanks #4024 and #4025	between 4133 & 4158
AOI-25	Former Fire Training Area	4175
AOI-26	Container Storage Area	east of 4046X
AOI-27	Pump House/Lift Station and Eastern Process Sewer	east property
AOI-28	Molybde Line	4081
AOI-29	Former Paint Booth	4094
AOI-30	Former Degreaser	4094
AOI-31	Former Diesel UST (Tank #4052)	between 4131 & 4095
AOI-32	Terminal Post (T-Post) Oil Collection System	4094
AOI-33	Former Conformal Coating Operation	4094
AOI-34	Former Paint Booth	4080
AOI-35	Former Glass Frit	4128
AOI-36	Former Paint Booth	4128
AOI-37	Former Used Viscor UST & Sump Collection System	east of 4100
AOI-38	Former Degreaser	4133
AOI-39	Former Degreaser	4107
AOI-40	Former Oleum UST (Tank #4023)	east of 4050
AOI-41	Former Paint Booth	4042
AOI-42	Former Degreaser	4060
AOI-43	PCB-Containing Transformers	Various
AOI-44	Satellite Accumulation Areas	Various
AOI-45	Compactor	4085
AOI-46	Lead Solder Booth	4088
AOI-47	Zylo Line	4094
AOI-48	Groundwater - Northwest and Southeast Property Boundary Areas	northwest and southeast

Notes: See Figure 2 for Building Locations and Figure 6 for Areas of Interest.

TABLE 2  
AREAS OF INTEREST TO BE INVESTIGATED  
FLINT-EAST, PLANT 400  
FLINT, MICHIGAN

AOI Designation		Building or Site Location
AOI-7	Former Zinc Die Cast Area	4082
AOI-8	Former Hard Chrome Plating Line	4082
AOI-9	Barrel, Rack, and U1 Plating Line	4051/4050
AOI-10	Power Wash Booth	4040
AOI-11	Executive Garage	4070
AOI-14	Phosphater	4081
AOI-16	Udylite Plating	4081
AOI-18	Former Zinc Dichromate Plating Lines (West Plating Lines)	4100
AOI-21	Used Oil UST Tanks #4032 and #4033	4091
AOI-22	Chip Collection Area	4141
AOI-23	Automatic Screw Machine Basement	4133
AOI-25	Former Fire Training Area	4175
AOI-27	Pump House/Lift Station and Eastern Process Sewer	east end of property
AOI-31	Former Diesel UST	between 4131 & 4095
AOI-32	Terminal Post (T-Post) Oil Collection System	4094
AOI-37	Former Used Viscor UST & Sump Collection System	east of 4100
AOI-40	Former Oleum UST	east of 4050
AOI-45	Compactor	4085
AOI-48	Groundwater - Northwest and Southeast Property Boundary Areas	northeast & southwest

Notes: See Figure 7 for Areas of Interest to be Investigated



USGS QUADRANGLE: FLINT NORTH, MICH.  
1969, photorevised 1975



UNDERGROUND  
ENGINEERING &  
ENVIRONMENTAL  
SOLUTIONS

DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

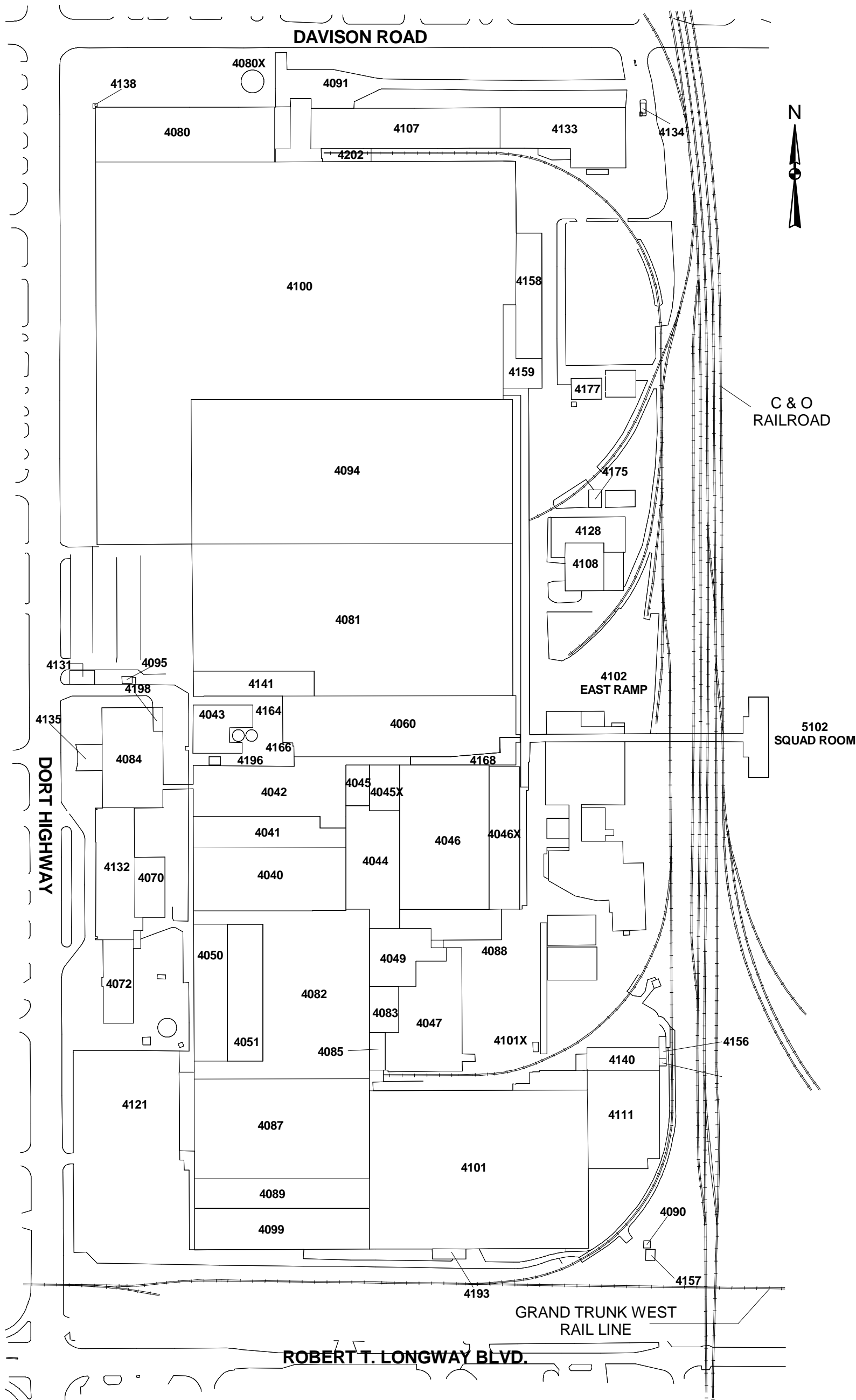
## SITE LOCATION MAP

SCALE: 1 IN. = 24,000 FT.

NOVEMBER 2002

FIGURE 1





Legend:

4101 Building outline with number designation

Notes:

1. Base plan provided by Delphi Corporation.



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SOLUTIONS

DELPHI CORPORATION  
PLANT 400/DORT HIGHWAY  
FLINT, MICHIGAN

SITE PLAN

SCALE: AS SHOWN

AUGUST 2002

FIGURE 2

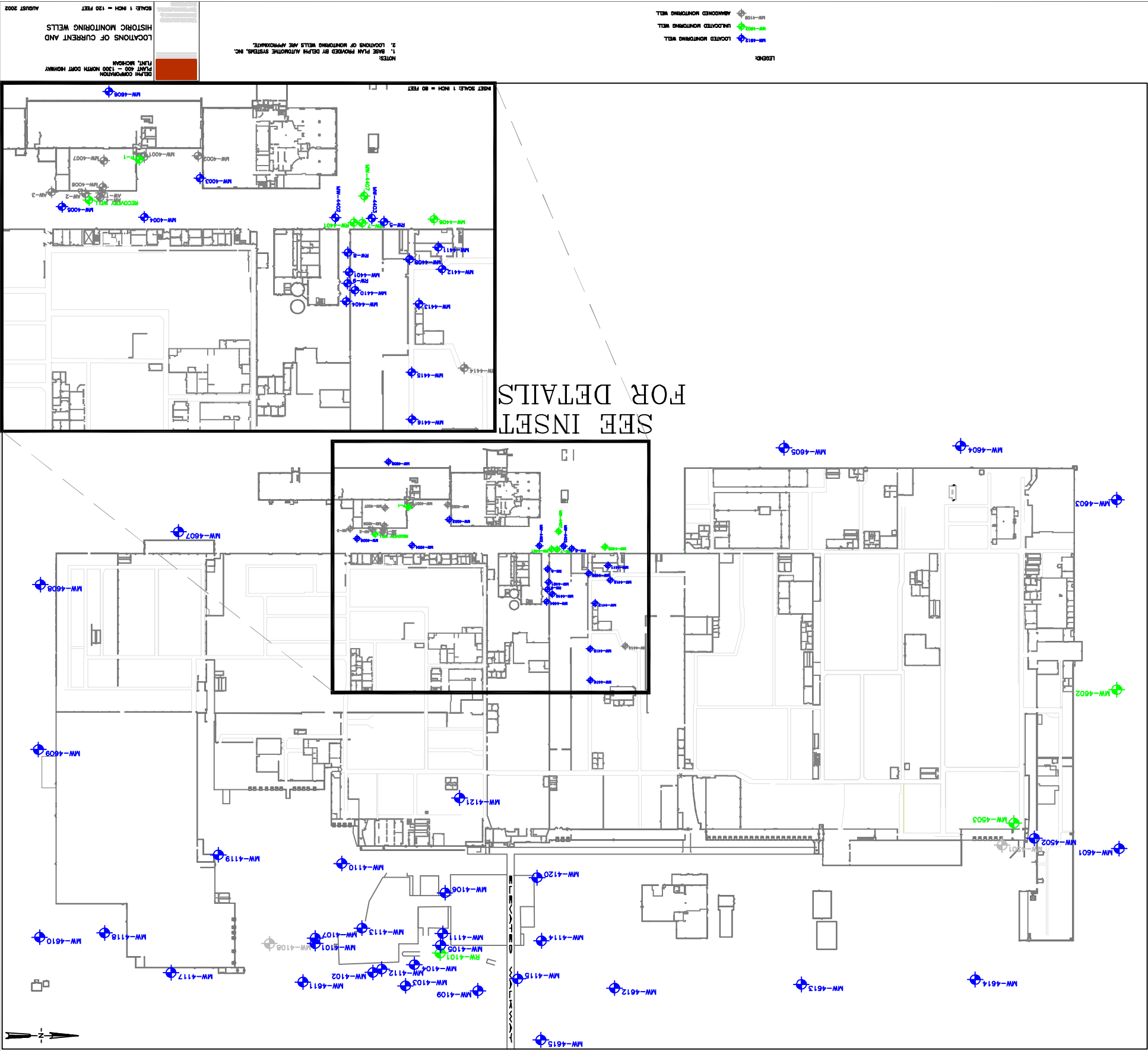


FIGURE 3

- LEGEND:**
- Data Points Honored
  - ⊕ Monitoring Well
- NOTES:**
1. BASE PLAN PROVIDED BY DELPHI CORPORATION
  2. GROUNDWATER CONTOURS ARE INTERPRETED BASED ON WATER LEVELS MEASURED IN INDIVIDUAL WELLS. GROUNDWATER CONTOURS MAY VARY FROM THAT DEPICTED ABOVE.

0 150 300  
SCALE IN FEET

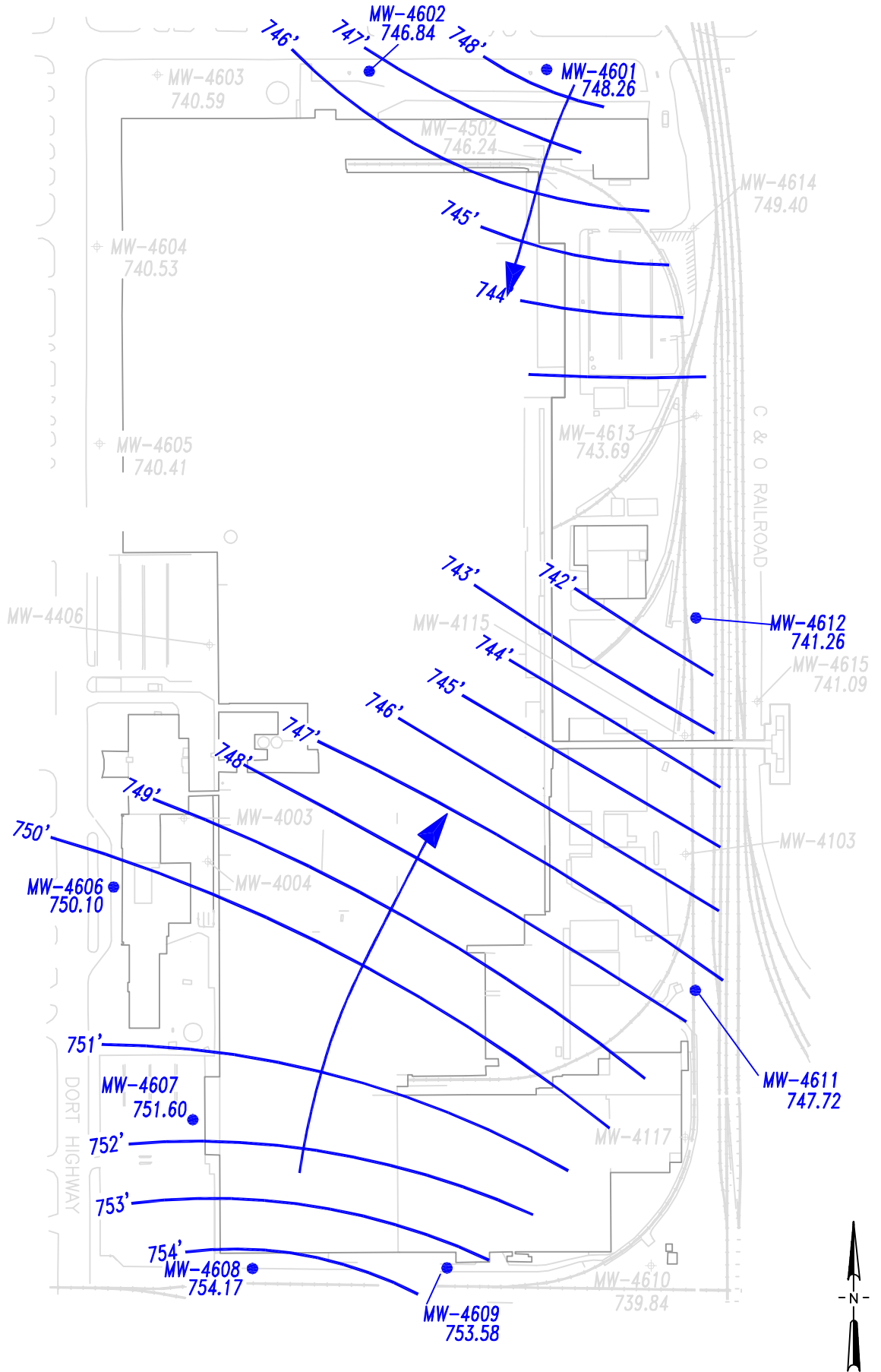


DELPHI CORPORATION  
PLANT 400/DORT HIGHWAY  
FLINT, MICHIGAN

GROUNDWATER ELEVATION  
CONTOUR PLAN (APRIL 2000),  
SHALLOW OVERBURDEN ZONE

SCALE: AS SHOWN

AUGUST 2002





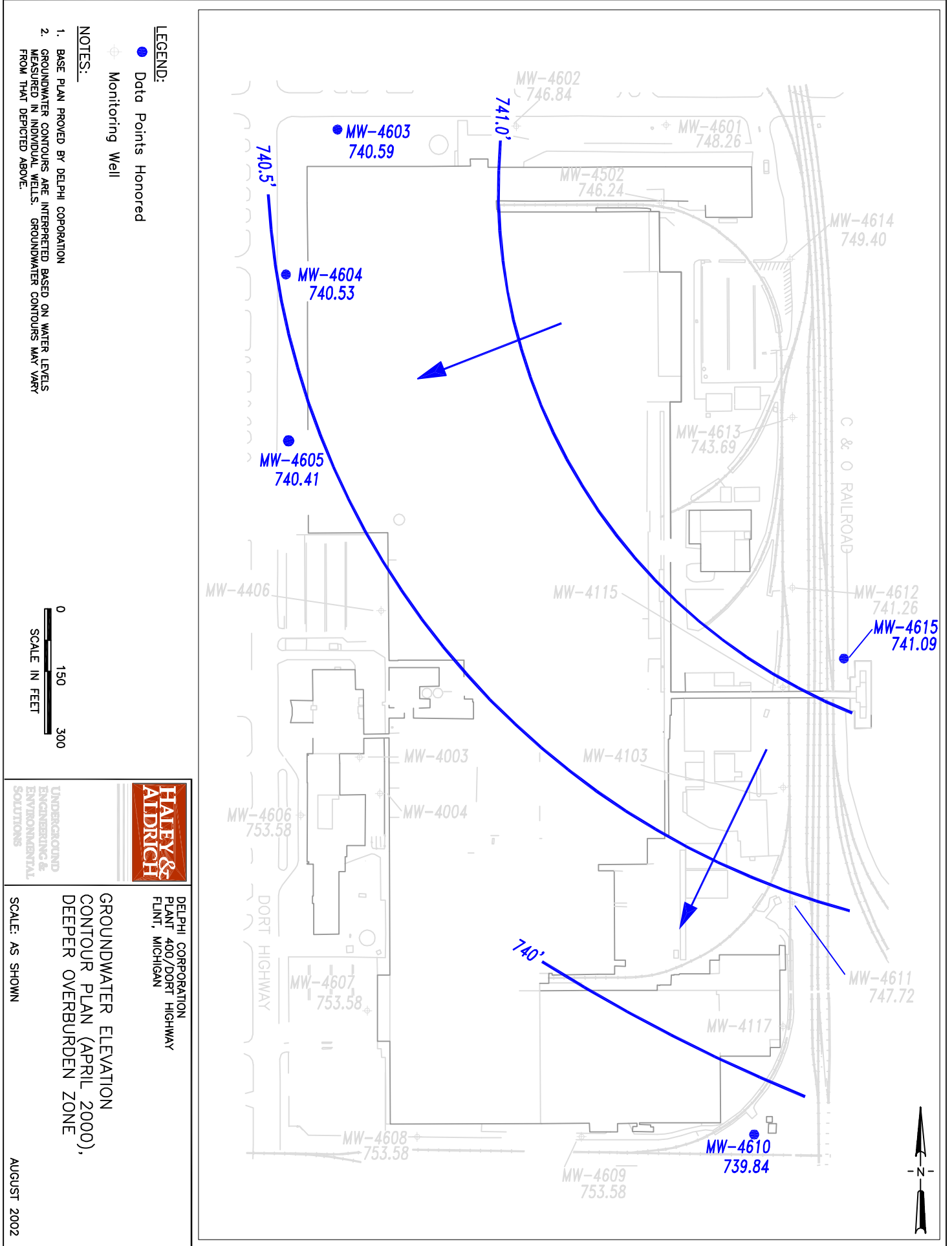
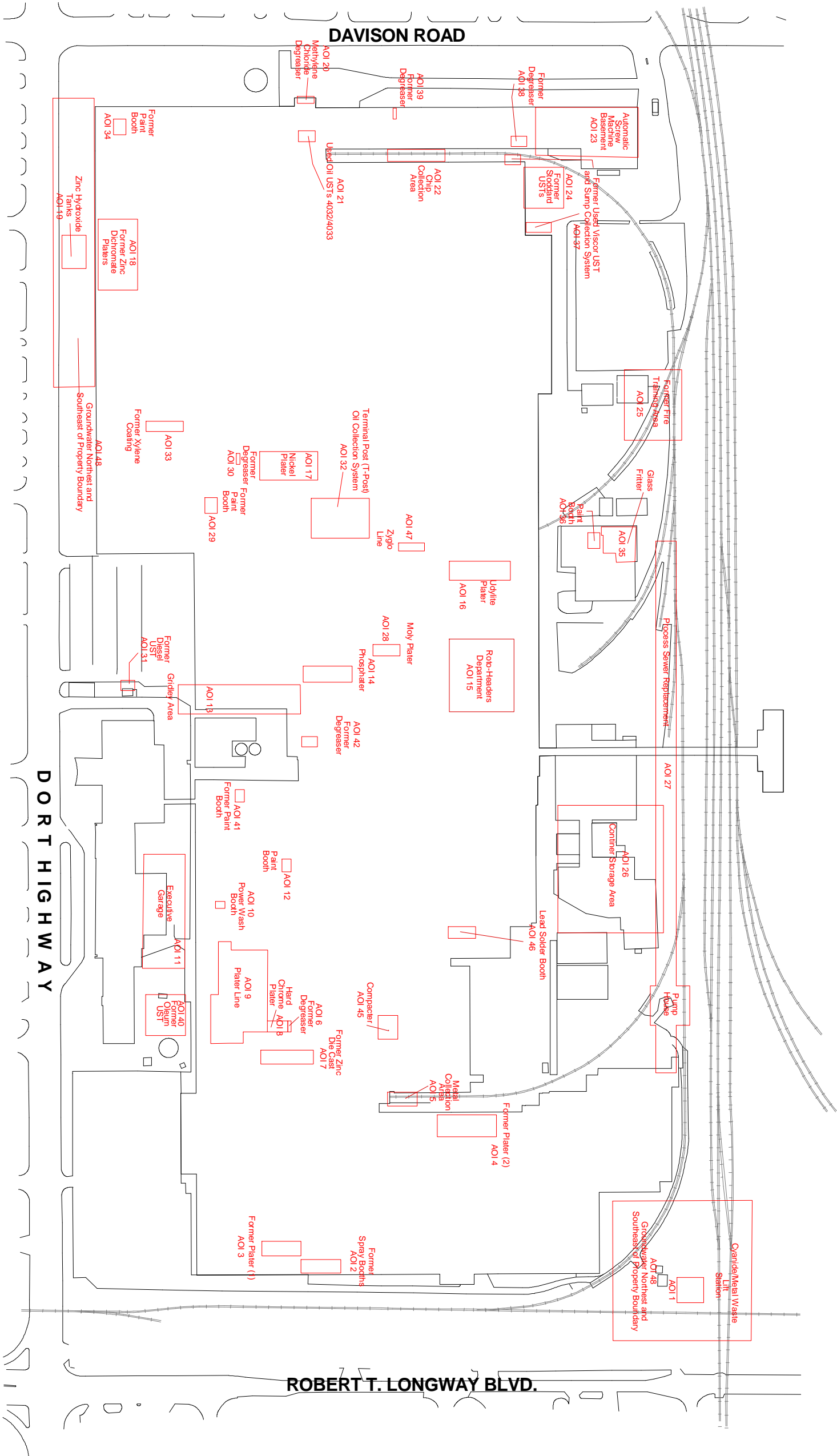


FIGURE 5



Legend:

Areas of Interest

80 0 80 160 Feet

Notes:

- 1. Base plan provided by Delphi Corporation



UNDERGROUND  
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ENVIRONMENTAL  
SOLUTIONS

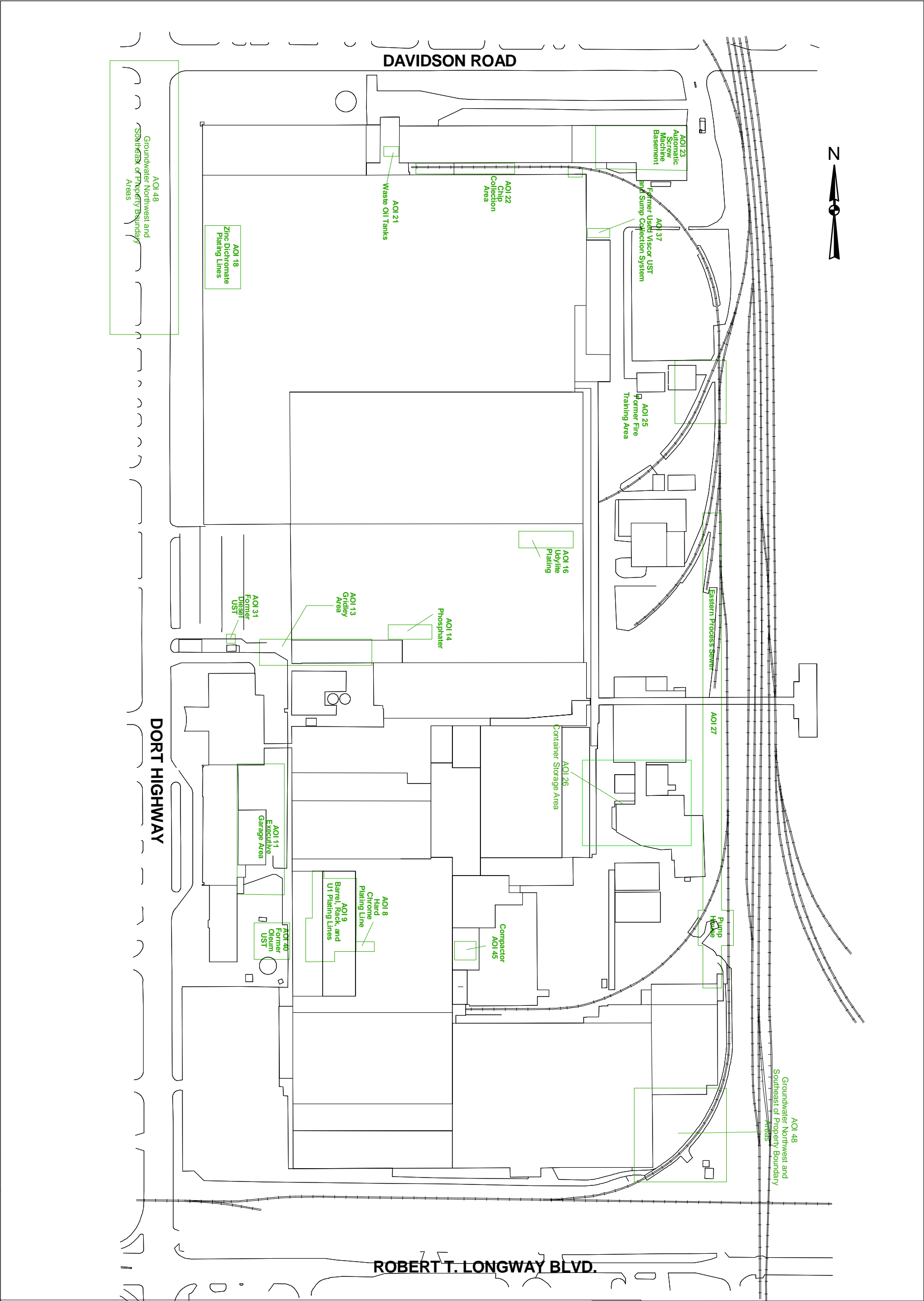
DELPHI CORPORATION  
PLANT 400/DORT HIGHWAY  
FLINT, MICHIGAN

AREAS OF INTEREST

SCALE: AS SHOWN

NOVEMBER 2002

FIGURE 6



Legend:

Areas of Interest

- Notes:
1. Base plan provided by Delphi Corporation.
  2. AOI 48 - Groundwater addresses site-wide groundwater conditions.

100 0 100 200 Feet



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ENGINEERING &  
ENVIRONMENTAL  
SOLUTIONS

DELPHI CORPORATION  
PLANT 400 DORT HIGHWAY  
FLINT, MICHIGAN

AREAS TO BE INVESTIGATED

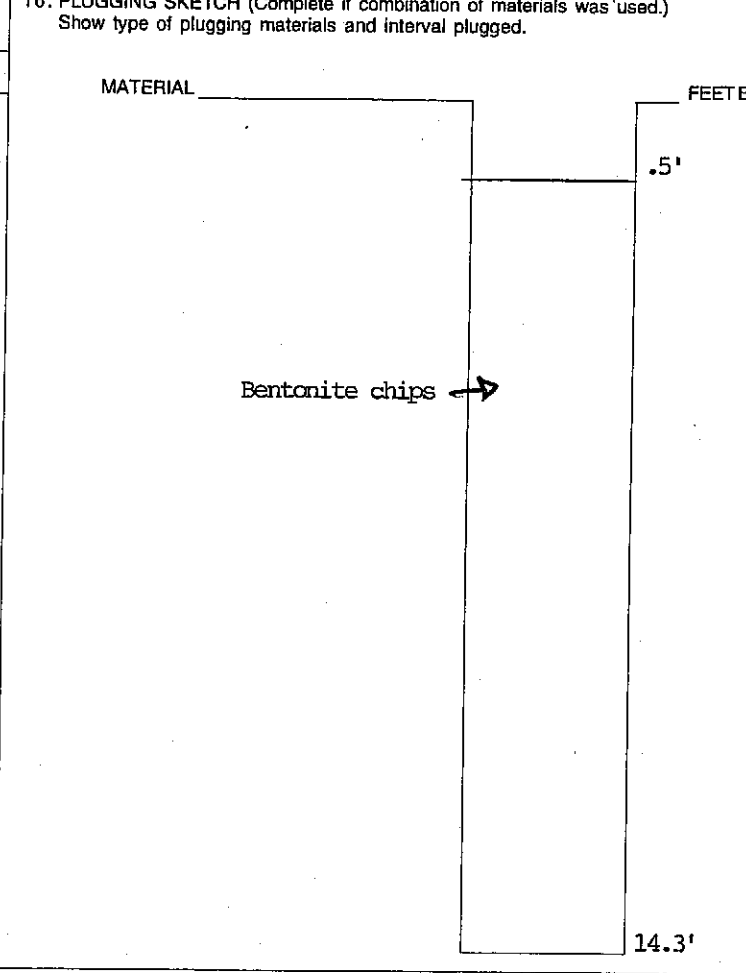
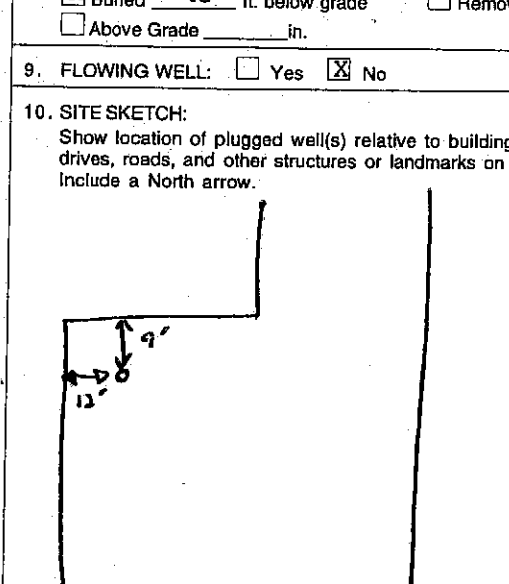
SCALE: AS SHOWN

NOVEMBER 2002

FIGURE 7

## **APPENDIX A**

### **Test Borings, Monitoring Well Logs, and Well Abandonment Logs**

TAX NO:		MICHIGAN DEPARTMENT OF PUBLIC HEALTH ABANDONED WELL PLUGGING RECORD				PERMIT NO:					
1. LOCATION OF WELL		Township Name		Fraction		Section No.		Town No.		Range No.	
County GENESEE		CITY OF FLINT		1/4 1/4 1/4				7N N/S		7E E/W	
Distance and Direction from Road Intersection						12. OWNER OF WELL Address Delphi 1300 N. Dort Highway Flint, MI 48506 Address Same as Well Location <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Street Address & City of Well Location 1300 N. Dort Highway Delphi East						13. DROP PIPE/PUMPING EQUIPMENT REMOVED <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain in COMMENTS)					
2. WELL DEPTH: 14.3 ft.		3. Date Plugging Completed 05 / 03 / 99				14. PLUGGING MATERIAL: Bentonite Chips from 14.3 ft. to .5 ft. 1 50# bags Bentonite Pellets from _____ ft. to _____ ft. _____ 50# bags Bentonite Grout from _____ ft. to _____ ft. _____ 50# bags Neat Cement from _____ ft. to _____ ft. _____ 94# bags Cement Grout from _____ ft. to _____ ft. _____ 94# bags Other _____					
4. USE: <input type="checkbox"/> Single Family <input type="checkbox"/> Type I Public <input type="checkbox"/> Heat Pump <input type="checkbox"/> Irrigation <input type="checkbox"/> Type II Public <input checked="" type="checkbox"/> Monitoring well <input type="checkbox"/> Test Well <input type="checkbox"/> Type III Public						15. LOST CIRCULATION ZONE MATERIALS USED <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type _____ Quantity _____ Placed from _____ ft. to _____ ft.					
5. REASON FOR ABANDONING WELL <input type="checkbox"/> New Well Drilled <input type="checkbox"/> Municipal Water Hookup <input type="checkbox"/> Unrepairable <input checked="" type="checkbox"/> Other Not required						16. PLUGGING SKETCH (Complete if combination of materials was used.) Show type of plugging materials and interval plugged.					
6. CASING: 2 in. dia. to 14.3 ft. depth. _____ in. dia. to _____ ft. depth		7. CASING MATERIAL <input type="checkbox"/> Steel <input type="checkbox"/> Other <input checked="" type="checkbox"/> Plastic									
8. CASING STATUS AFTER PLUGGING <input checked="" type="checkbox"/> Buried .5 ft. below grade <input type="checkbox"/> Removed <input type="checkbox"/> Above Grade _____ in.											
9. FLOWING WELL: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
10. SITE SKETCH: Show location of plugged well(s) relative to buildings, drives, roads, and other structures or landmarks on site. Include a North arrow.											
11. COMMENTS MW #4001 Hole Plug hydrated Cement cap											
17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was plugged under my jurisdiction and this report is true to the best of my knowledge and belief. STEARNS DRILLING COMPANY REGISTERED BUSINESS NAME Address 6974 HAMMOND AVENUE, SE, DUTTON, MI 49316-9116 Signature _____ Date 1-12-99						41-1095 REGISTRATION NO.					

NOTE: Plugging from well bottom up to ground surface is required.

mw 4001

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> Subsurface Investigation A.C. Rochester		Boring#: MW-1 Job #: 2079008-13 Sheet: 2 of: 5		
Boring Method: 4.25" Hollow Stem Auger Surface Conditions: Concrete with Asphalt Cap				Date Start: 1/9/90 Date Complete: 1/11/90			
Groundwater Encountered @: 9'-0"							
SAMPLE			Depth in Feet	Classification of Material			
Type	Depth	Blows/6"					
N/A	N/A	N/A	0-12"	Concrete with asphalt cap Slightly discolored oxidized variegated clay w/sand and gravel			
			1'-0"				
			4'-6"	Oxidized silty variegated clay w/streaks of silt			
			5'				
			6'-6"	Oxidized silty brown varie- -gated clay w/sand and gravel			
			9'-0"	Wet clayey silty fine brown sand			
9'-6"							
10'	Wet silty fine brown sand						
13'-6"	Moist silty fine gray sand						
14'-3"	Moist silty gray clay with lenses of silt						
15'							
19'-9"	Moist silty gray clay w/sand and gravel						
20'							
20'-6"			End of boring				

Remarks: Monitoring well set.

TAX NO:

# MICHIGAN DEPARTMENT OF PUBLIC HEALTH ABANDONED WELL PLUGGING RECORD

PERMIT NO:

1. LOCATION OF WELL

County

GENESEE

Township Name

CITY OF FLINT

Fraction

1/4

1/4

1/4

Section No.

Town No.

7N

N/S

Range No.

7E

E/W

Distance and Direction from Road Intersection

1300 N. Dort Highway, Flint, MI  
Street Address & City of Well Location Delphi East

12. OWNER OF WELL

Delphi

Address

1300 N. Dort Highway  
Flint, MI 48506

Address Same as Well Location ☒ Yes ☐ No

13. DROP PIPE/PUMPING EQUIPMENT REMOVED

☒ Yes ☐ No (Explain in COMMENTS)

14. PLUGGING MATERIAL:

Bentonite Chips from 15.2 ft. to .5 ft. .5 50# bags

Bentonite Pellets from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. \_\_\_\_\_ 50# bags

Bentonite Grout from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. \_\_\_\_\_ 50# bags

Neat Cement from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. \_\_\_\_\_ 94# bags

Cement Grout from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. \_\_\_\_\_ 94# bags

Other \_\_\_\_\_

2. WELL DEPTH:

15.2 ft.

3. Date Plugging Completed

05/ 03 / 99

4. USE:

☐ Single Family☐ Type I Public☐ Heat Pump☐ Irrigation☐ Type II Public☒ Monitoring well☒ Test Well☐ Type III Public

5. REASON FOR ABANDONING WELL

☐ Municipal Water Hookup☐ New Well Drilled☒ Other Not required☐ Unrepairable

6. CASING:

2 in. dia. to 15.2 ft. depth.

\_\_\_\_\_ in. dia. to \_\_\_\_\_ ft. depth

7. CASING MATERIAL

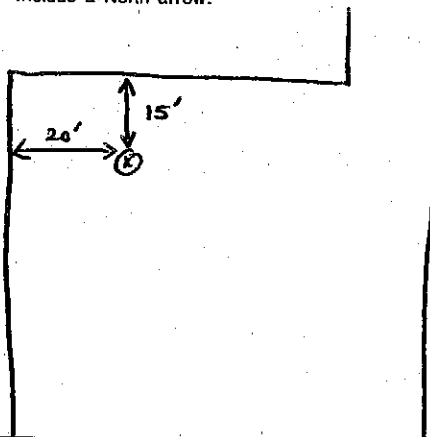
☐ Steel ☐ Other \_\_\_\_\_☒ Plastic

8. CASING STATUS AFTER PLUGGING

☒ Buried .5 ft. below grade☐ Removed☐ Above Grade \_\_\_\_\_ in.9. FLOWING WELL: ☐ Yes ☒ No

10. SITE SKETCH:

Show location of plugged well(s) relative to buildings, drives, roads, and other structures or landmarks on site. Include a North arrow.

15. LOST CIRCULATION ZONE MATERIALS USED ☐ Yes ☒ No

Type \_\_\_\_\_ Quantity \_\_\_\_\_ Placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

16. PLUGGING SKETCH (Complete if combination of materials was used.)  
Show type of plugging materials and interval plugged.

MATERIAL

FEET BELOW GRADE

Bentonite chips →

.5'

15.2'

11. COMMENTS MW #4002

Hole Plug hydrated

Cement cap

17. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my jurisdiction and this report is true to the best of my knowledge and belief.

STEARNS DRILLING COMPANY

41-1095

REGISTERED BUSINESS NAME

REGISTRATION NO.

Address 6974 HAMMOND AVENUE, SE, DUTTON, MI 49316-9116

Signed

Date

6-12-99

AUTHORIZED REPRESENTATIVE

NOTE: Plugging from well bottom up to ground surface is required.

**IMPORTANT: File with deed.**

Remarks: Monitoring well set.



mw4003

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> Subsurface Investigation A.C. Rochester		Boring#: MW-3 Job #:2079008-13 Sheet: 4 of: 5
Boring Method: 4.25" Hollow Stem Auger Surface Conditions: Concrete with Asphalt Cap				Date Start: 1/9/90 Date Complete: 1/11/90	
Groundwater Encountered @: 9'-0"					
SAMPLE			Depth in Feet	Classification of Material	
Type	Depth	Blows/6"			
			0-12"	Concrete with asphalt cap	
			1'-0"	Black topsoil w/vegetation	
			3'-0"	Oxidized silty variegated clay w/sand and gravel	
			5'		
SS	9'-0" - 10'-6"	N/A	9'-0"	Wet fine brown silty sand	
			10'		
SS	13'-0" - 14'-6"	N/A	12'-6"	Moist silty gray clay	
			14'-6"	End of boring	
			15'		
			20'		
Remarks: Monitoring well set.					

mw 400 4

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> Subsurface Investigation A.C. Rochester		Boring#: MW-4 Job #: 2079008-13 Sheet: 5 of: 5
Boring Method: 4.25" Hollow Stem Auger Surface Conditions: Asphalt Pavement				Date Start: 1/9/90 Date Complete: 1/11/90	
Groundwater Encountered @: 8'-6"					
SAMPLE			Depth in Feet	Classification of Material	
Type	Depth	Blows/6"			
SS	14'-6" - 16'-0"	N/A	0-8"	Asphalt + basecourse Oxidized variegated clay	
			5'		
			8'-6"	Wet silty fine brown sand	
			10'		
			12'-6"	Moist silty gray clay	
			15'		
			16'-0"	End of boring	
			20'		
Remarks: Monitoring well set.					

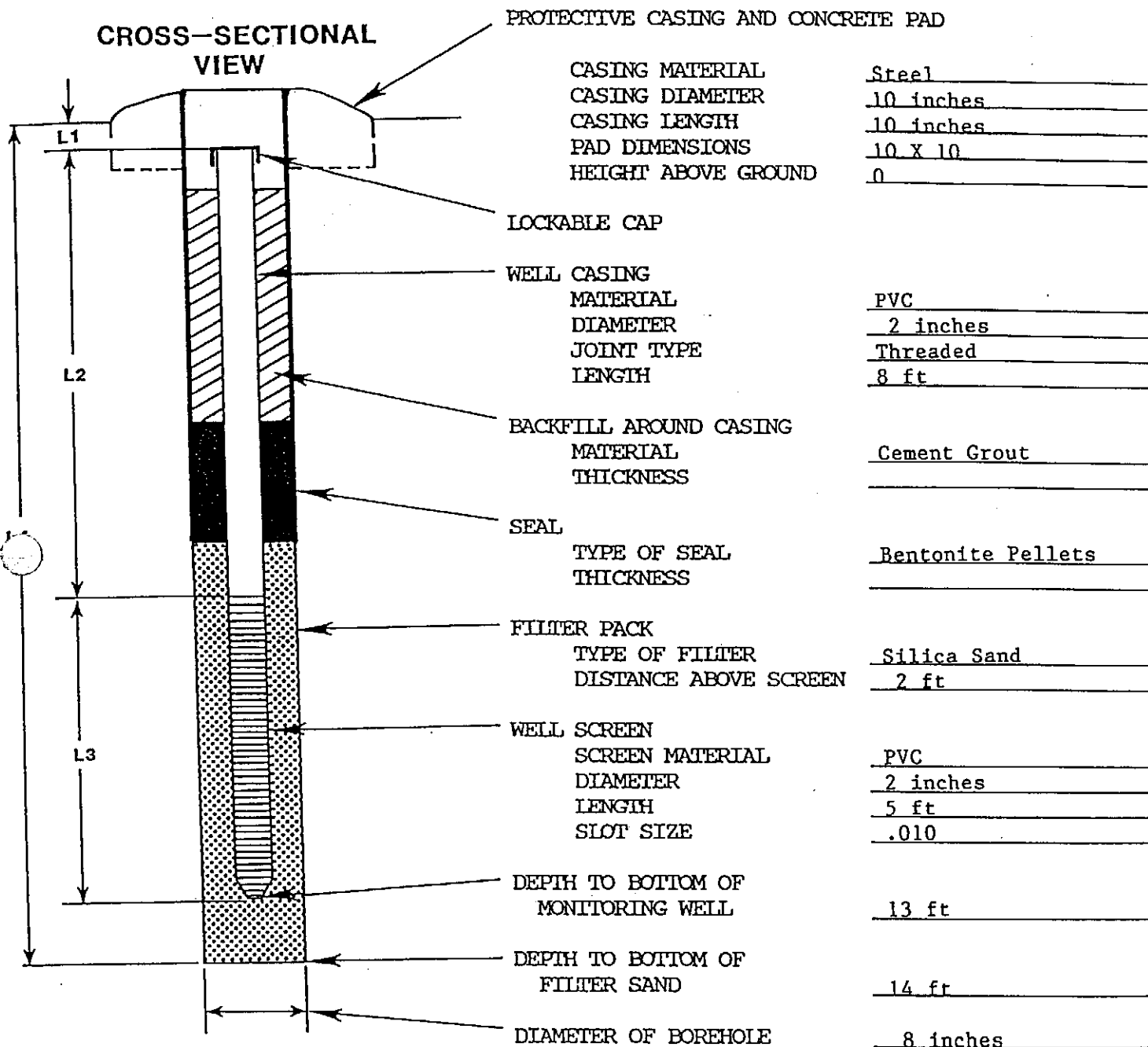
mw4005

AC ROCHESTER - EXECUTIVE GARAGE GASOLINE TANK (UST # 4007) 1300 NORTH DORT-HIGHWAY FLINT, MI						PROJECT NO. 91123		SHEET 1 OF 1	
MONITOR WELL: MW-5 (MW4005)						CONTRACTOR: ENVIRONMENTAL DRILLING SERVICES		DRILLING METHOD: SPLIT SPOON, HSA	
						DRILLER: TOM		DRILLING RIG: RIG # 2	
LAND OWNER: AC ROCHESTER						START DATE: 10/24/91		COMPLETION DATE: 10/24/91	
ELEVATION: 760 FT.						LOGGED BY: RICHARD G. STEELE			
TYPE	HUB	B L #	SAMPLE INTV. (FT)	SAMPLE REC. (IN)	DEPTH SCALE 1" = 4'	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION OBSERVATIONS		
							ORGANIC VAPOR ANALYZER (OVA) ppm- CARBON FILTER	NOTES	
HA	1	--	1-2	6	2	Cement, asphalt	with / without	net	
HA	2	--	2-4	6	4	Clay, gray-green, occ red brown, soft, occ wet		No Odor	
SS	3	6 6 6 6	5-7	18	6	Clay, gray green, occ red brown, soft, occ wet		No Odor	
HSA					8	Sand, lt brown, lt gray, fine grained, loose	Water Table @ 6 ft.	No Odor	
SS	4	5 3 3 4	10-12	18	10	Sand, lt brown, lt gray, fine grained, loose	N.R.	No Odor	
HSA					12	Clay, gray, sl stiff, dry	N.R.	No Odor	
					14	Clay, gray, dry, stiff	N.R.	No Odor	
SS	4	4 4 5 6	16-18	24	16	Clay, gray, medium stiff, dry	-- / 1	No Odor	
					18	E.O.B. at 18 ft.			
					20				
					22				
					24				
					26				

# ECT

Environmental Consulting &amp; Technology, Inc.

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE



PROJECT AC Rochester-East (UST #4007)

PROJECT NO. 91-123-0600

MONITORING WELL MW-5

MW 4005

L1 = 1 FT.

L2 = 8 FT.

L3 = 5 FT.

L4 = 13 FT.

**ECT**

Environmental Consulting &amp; Technology, Inc.

TAX NO:

# MICHIGAN DEPARTMENT OF PUBLIC HEALTH ABANDONED WELL PLUGGING RECORD

PERMIT NO:

## 1. LOCATION OF WELL

County

GENESEE

Township Name

CITY OF FLINT

Fraction

1/4 1/4 1/4

Section No.

Town No.

7N N/S

Range No.

7E E/W

Distance and Direction from Road Intersection

Street Address &amp; City of Well Location

1300 N. Dort Highway, Flint, MI  
Delphi East

## 12. OWNER OF WELL

Delphi

Address

1300 N. Dort Highway  
Flint, MI 48506Address Same as Well Location ☒ Yes ☐ No

## 2. WELL DEPTH:

14.3 ft.

## 3. Date Plugging Completed

05 / 03 / 99

## 13. DROP PIPE/PUMPING EQUIPMENT REMOVED

☒ Yes ☐ No (Explain in COMMENTS)

## 4. USE:

☐ Single Family☐ Type I Public☐ Heat Pump☐ Irrigation☐ Type II Public☒ Test Well☐ Type III Public

## 5. REASON FOR ABANDONING WELL

☐ Municipal Water Hookup☐ New Well Drilled☒ Other Not required☐ Unrepairable

## 6. CASING:

4 in. dia. to 14.3 ft. depth.

in. dia. to ft. depth

## 7. CASING MATERIAL

☐ Steel ☐ Other☒ Plastic

## 8. CASING STATUS AFTER PLUGGING

☒ Buried .5 ft. below grade☐ Removed☐ Above Grade in.

## 9. FLOWING WELL:

☐ Yes ☒ No

## 10. SITE SKETCH:

Show location of plugged well(s) relative to buildings, drives, roads, and other structures or landmarks on site. Include a North arrow.

Plant #4

N →

30'  
3' ↓

## 15. LOST CIRCULATION ZONE MATERIALS USED

☐ Yes ☒ No

Type \_\_\_\_\_ Quantity \_\_\_\_\_ Placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

## 16. PLUGGING SKETCH (Complete if combination of materials was used.)

Show type of plugging materials and interval plugged.

MATERIAL

FEET BELOW GRADE

.5'

Bentonite chips →

14.3'

## 11. COMMENTS

MW #4006

Hole Plug hydrated

Cement cap

## 17. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my jurisdiction and this report is true to the best of my knowledge and belief.

STEARNS DRILLING COMPANY

41-1095

REGISTERED BUSINESS NAME

REGISTRATION NO.

Address 6974 HAMMOND AVENUE SE, DUTTON, MI 49316-9116

Signed

Richard L. Korman  
AUTHORIZED REPRESENTATIVE

Date 6-12-99

NOTE: Plugging from well bottom up to ground surface is required.

IMPORTANT: File with deed.

mw4006

# ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

## Test Boring Log Form

Project No.: 91-123-600  
 Contractor: EDS  
 Driller: Tom Seymour  
 Start Date: 5/27/93  
 Elevation: 757.91  
 Boring ID: SB-6/MW-6

Site Location: AC-East Exec. Garage, Flint, MI  
 Drilling Method: HSA  
 Drill Rig: Mobile Drill B-57  
 Completion Date: 5/27/93  
 Logged By: Mona Michaelis  
 Weather: 65 Deg. F., Moderate Breeze

(MW 4006)

T y p e	N u m b	B l o w	Sample Interval (ft)	Rec. (%)	Depth (ft)	Material Description and Condition	PID (ppm)
					6" Concrete		
					1 Sand.		1.2
					2		
					Cobbles.		
					3 Dark brown sand.		2.0
ss	3	4	4 - 6'	70	4 Brown/gray dry mottled clay with trace of fine sand and pebbles. Slight black staining at		561
	4	4			5 4 - 4.25.		
ss	3	3	6 - 8'	80	6 Brown/gray mottled clay with some sand and		2,500+
	3	5			trace of pebbles. Slight plasticity. Some		
					7 gasoline odor.		
ss	3	3	8 - 10'	70	8 SAA. Odor		2,500+
	4	3					
					9		
ss	3	9	10 - 12	100	10 SAA.		
	15	21			Gray wet fine grained sand with staining.		51
					11 Slight sheen present.		
ss	9	20	12 - 14	100	12 Gray to brown, wet, fine grained sand with		18
	26	29			some clay.		
					13		
					3" Clay.		
					14 E.O.B.		
					15 Well Construction:		
					Screen: 14 - 9'		
					16 Filter pack coarse grained silica sand: 14 - 7'		
					Holeplug: 7 - 5'		
					17 Grout: 5' - grade.		
					18 2-inch PVC riser and screen, flushmount		
					19		
					20		

E.O.B. = End of boring.

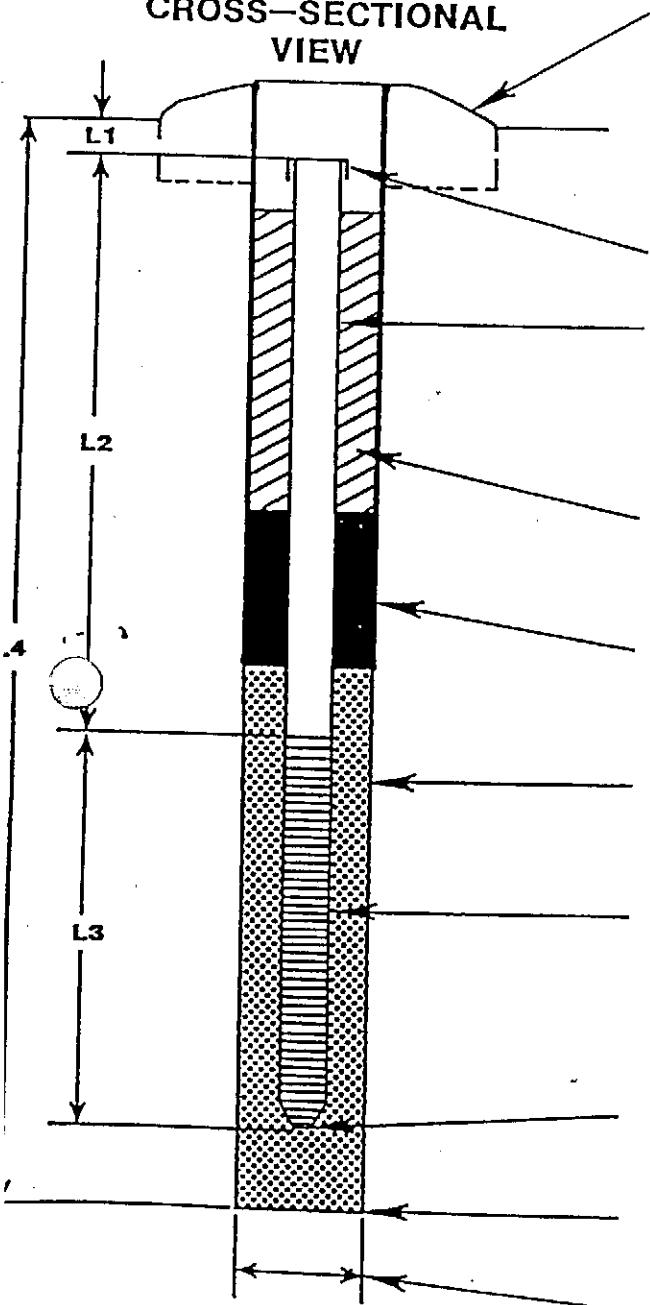
ss = Split-spoon

HSA = Hollow Stem Auger

mw4006

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



### PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL	Steel
CASING DIAMETER	-
CASING LENGTH	-
PAD DIMENSIONS	none
HEIGHT ABOVE GROUND	Flush-mount

### LOCKABLE CAP

### WELL CASING

MATERIAL	PVC
DIAMETER	4-inch
JOINT TYPE	threaded
LENGTH	8.42-Foot

### BACKFILL AROUND CASING

MATERIAL	Grout
THICKNESS	3.5-feet

### SEAL

TYPE OF SEAL	Bentonite
THICKNESS	2-feet

### FILTER PACK

TYPE OF FILTER	#5-Grade Sand
DISTANCE ABOVE SCREEN	2-feet

### WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	4-inch
LENGTH	5-foot
SLOT SIZE	#10-Slot

### DEPTH TO BOTTOM OF MONITORING WELL

13.42-feet

### DEPTH TO BOTTOM OF FILTER SAND

14.0-feet (est.)

### DIAMETER OF BOREHOLE

10-inch

PROJECT Execative Garage

PROJECT NO. 91-123-0600

MONITORING WELL MW-6 (mw4006)

L1 - - FT.  
L2 - 8.42 FT.  
L3 - 5 FT.  
L4 - - FT.

**ECT**

Environmental Consulting & Technology, Inc.

TAX NO:

# MICHIGAN DEPARTMENT OF PUBLIC HEALTH ABANDONED WELL PLUGGING RECORD

PERMIT NO:

1. LOCATION OF WELL

County

GENESEE

Township Name

CITY OF FLINT

Fraction

1/4 1/4 1/4

Section No.

Town No.

7N N/S

Range No.

7E E/W

Distance and Direction from Road Intersection

Street Address &amp; City of Well Location

1300 N. Dort Highway, Flint, MI  
Delphi East

12 OWNER OF WELL

Address

Delphi  
1300 N. Dort Highway  
Flint, MI 48506Address Same as Well Location ☒ Yes ☐ No

2. WELL DEPTH:

13.6 ft.

3. Date Plugging Completed

05 / 03 / 99

4. USE:

☐ Single Family☐ Type I Public☐ Heat Pump☐ Irrigation☐ Type II Public☒ Monitoring well☒ Test Well☐ Type III Public

5. REASON FOR ABANDONING WELL

☐ Municipal Water Hookup☐ New Well Drilled☒ Other Not required☐ Unrepairable

6. CASING:

2 in. dia. to 13.6 ft. depth.

in. dia. to ft. depth

7. CASING MATERIAL

☐ Steel ☐ Other☒ Plastic

13. DROP PIPE/PUMPING EQUIPMENT REMOVED

☒ Yes ☐ No (Explain in COMMENTS)

14. PLUGGING MATERIAL:

Bentonite Chips from 13.6 ft. to .5 ft. 50# bags

Bentonite Pellets from ft. to ft. 50# bags

Bentonite Grout from ft. to ft. 50# bags

Neat Cement from ft. to ft. 94# bags

Cement Grout from ft. to ft. 94# bags

Other

15. LOST CIRCULATION ZONE MATERIALS USED

☐ Yes ☒ No

Type Quantity Placed from ft. to ft.

16. PLUGGING SKETCH (Complete if combination of materials was used.)

Show type of plugging materials and interval plugged.

MATERIAL

FEET BELOW GRADE

.5'

Bentonite chips →

13.6'

17. WATER WELL CONTRACTOR'S CERTIFICATION:

This well was plugged under my jurisdiction and this report is true to the best of my knowledge and belief.

STEARNS DRILLING COMPANY

41-1095

REGISTERED BUSINESS NAME

REGISTRATION NO.

Address 6974 HAMMOND AVENUE, SE, DUTTON, MI 49316-9116

Signed

Richard L. Verron Date 6-12-99

AUTHORIZED REPRESENTATIVE

Authority: Act 358 PA 1978  
Completion: Required

Penalty: Conviction of a violation of any provision is a misdemeanor.

NOTE: Plugging from well bottom up to ground surface is required.

IMPORTANT: File with deed.



# ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

## Test Boring Log Form

Project No.: 91-123-600  
 Contractor: EDS  
 Driller: Tom Seymour  
 Start Date: 5/27/93  
 Elevation: 757.62  
 Boring ID: SB-7/MW-7

Site Location: AC-East Exec. Garage, Flint, MI  
 Drilling Method: HSA  
 Drill Rig: Mobile Drill B-57  
 Completion Date: 5/27/93  
 Logged By: Mona Michaelis  
 Weather: 65 Deg. F., Moderate Breeze

(MW 4007)

Type	Number	Borehole	Sample Interval (ft)	Rec. (%)	Depth (ft)	Material Description and Condition	PID (ppm)
					--	6" Concrete	
					1	Black stained moist sandy clay with cobbles.	3.0
					--		
					2		
					--		
					3		
					--		
ss	3	2	4 - 6'	80	4	3" SAA	
	4	4			--	Brown/gray mottled dry clay with trace of	13
					5	pebbles.	
					--		
ss	2	3	6 - 8'	80	6	Black stained, sand.	4.5
	3	5			--	Gray/brown mottled clay with trace of pebbles.	5.0
					7		
					--		
ss	3	3	8 - 10'	75	8	SAA. Some sand.	2.4
	5	6			--		
					9		
					--	Brown, wet, fine grained sand.	
ss	8	10	10 - 12	100	10	SAA	5.0
	15	16			--		
					11		
					--		
					12		
					--		
ss	5	6	13 - 15	30	13	SAA	4.0
	4	10			--		
					14	Gray, stiff clay with trace of pebbles.	
					--		
					15	E.O.B.	
					--		
					16	Well Construction:	
					--	Screen: 14 - 9'	
					17	Filter pack coarse grained sand: 14 - 7'	
					--	Holeplug: 7 - 5'	
					18	Grout: 5' - grade.	
					--	4-inch PVC casing and riser, flushmount.	
					19		
					--		
					20		

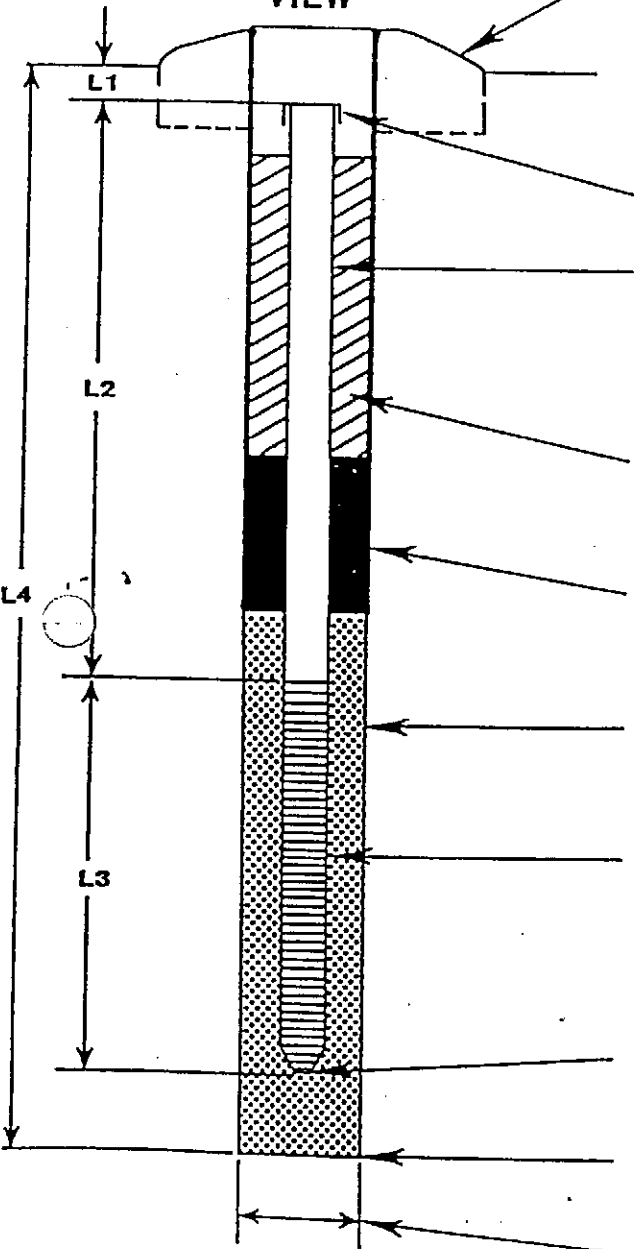
E.O.B. = End of boring.

ss = Split-spoon

HSA = Hollow Stem Auger

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



### PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL	Steel
CASING DIAMETER	-
CASING LENGTH	-
PAD DIMENSIONS	none
HEIGHT ABOVE GROUND	Flush mount

### LOCKABLE CAP

WELL CASING MATERIAL	PVC
DIAMETER	2-inch
JOINT TYPE	Threaded
LENGTH	8.32-feet

### BACKFILL AROUND CASING

MATERIAL	Grout
THICKNESS	3-feet

### SEAL

TYPE OF SEAL	Bentonite
THICKNESS	2-feet

### FILTER PACK

TYPE OF FILTER	#5-Grade sand
DISTANCE ABOVE SCREEN	2-feet

### WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	2-inch
LENGTH	5-foot
SLOT SIZE	#10-Slot

### DEPTH TO BOTTOM OF MONITORING WELL

13.32-feet

### DEPTH TO BOTTOM OF FILTER SAND

14.0-feet (est.)

### DIAMETER OF BOREHOLE

10-inch

PROJECT Executive Garage

PROJECT NO. 91-123-0600

MONITORING WELL MW-7 (mw4007)

L1 = - FT.  
L2 = 8.32 FT.  
L3 = 5 FT.  
L4 = - FT.

**ECT**

Environmental Consulting & Technology, Inc.

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> GENERAL MOTORS CORPORATION AC ROCHESTER DIVISION		Boring #: OW-1 TPN 207-8001-10 Sheet: 1 of: 1
Boring Method: Hollow Stem Auger Surface Conditions: Concrete				Date Start: 5/23/90 Date Complete: 5/23/90	
Groundwater Encountered @: 7'6"					
SAMPLE			Depth in Feet	Classification of Material	
ID	Depth	Blows/6"			
1-1	1'6" - 3'	4-3-3	1'	Concrete.	
			1'2"	Silty sand, medium, moist, brown, base course.	
1-2	3' - 4'6"	2-2-3		Silty clay, trace sand, gravel, and coal, medium stiff, slightly plastic to plastic, moist, variegated oxidized brown, gray and brown with occasional thin beds of sandy, gray clay. dark gray to black, medium fine silty sand.	
1-3	4'6" - 6'	3-3-4	5'		
1-4	7' - 9'	3-7-8-14	7'6"		
			10'		
1-5	11'6" - 13'1"		12'		
			13'	Silty clay, trace sand, stiff, plastic, some stratification, moist, gray.	
			15'	End of boring.	
			20'		
Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 6'6"-11'6", PVC riser.					

TECHNA CORPORATION  
44808 Helm Street  
Plymouth, Mi 48170

PROJECT  
GENERAL MOTORS CORPORATION  
AC ROCHESTER DIVISION

Boring #: OW-2  
TPN 207-8001-10  
Sheet: 1 of: 1

Boring Method: Hollow Stem Auger  
Surface Conditions: Gravel

Date Start: 5/21/90  
Date Complete: 5/21/90

Groundwater Encountered @: 7'

SAMPLE			Depth in Feet	Classification of Material
ID	Depth	Blows/6"		
2-1	1'6" - 3'	5-5-6	0-6"	Gravel, course to fine, moist.
2-2	3' - 4'6"	5-6-7	3'	Silty clay, trace sand, plastic, stiff, moist, variegated oxidized brown and gray.
2-3	4'6" - 6'	4-6-9	5'	Discolored dark gray silty clay at 1'6"-2'.
2-4	7' - 8'6"	10-15-21	7'	Silty sand, fine dense, saturated, brown.
2-5	11' - 12'6"	8-7-10	10'	Very silty clay, slightly plastic to plastic, stiff saturated gray, with thin beds of gray, clayey silt.
			11'	
			12'6"	End of boring.
			15'	
			20'	

Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 6'-11', PVC riser.

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> GENERAL MOTORS CORPORATION AC ROCHESTER DIVISION		Boring #: OW-3 TPN 207-8001-10 Sheet: 1 of: 1
Boring Method: Hollow Stem Auger Surface Conditions: Gravel				Date Start: 5/22/90 Date Complete: 5/22/90	
Groundwater Encountered @: 7'6"					
SAMPLE			Depth in Feet	Classification of Material	
ID	Depth	Blows/6"			
3-1	1'6" - 3'	3-3-4	0-6"	Gravel, fine to course.	
	3-2	3' - 4'6"	2-2-3	2'	Sandy, clayey topsoil, trace gravel, moist, with very beads of medium brown sand. 1'6"-2' dark brown.
3-3				4'6" - 6'	1-2-2
	3-4	10' - 12'	13-20-32-22		
3-5					
				End of boring.	
			15'		
			20'		
Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 6'6"-11'6", PVC riser.					

TECHNA CORPORATION 44808 Helm Street Plymouth, Mi 48170			<u>PROJECT</u> GENERAL MOTORS CORPORATION AC ROCHESTER DIVISION		Boring #: OW-4 TPN 207-8001-10 Sheet: 1 of: 1
Boring Method: Hollow Stem Auger Surface Conditions: Sandy topsoil with gravel				Date Start: 5/21/90 Date Complete: 5/21/90	
Groundwater Encountered @: 7'					
SAMPLE			Depth in Feet	Classification of Material	
ID	Depth	Blows/6"			
4-1	1'6" - 3'	2-2-2	0-6"	Sandy topsoil with gravel.	
	4-2	3' - 4'6"	2-4-5	3'	Silty clay with little sand, soft, slightly plastic to plastic, very moist with thin beds of brown saturated silty sand (medium fine).
4-3					
	4-4	7' - 9'	3-7-8-14	7'6"	Silty sand, fine, dense, saturated, brown with thin beds of brown silty clay.
4-5					
				13'6"	End of boring.
			20'		

Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 6'-11', PVC riser.

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> GENERAL MOTORS CORPORATION AC ROCHESTER DIVISION		Boring #: OW-5 TPN 207-8001-10 Sheet: 1 of: 1
Boring Method: Hollow Stem Auger Surface Conditions: Concrete				Date Start: 5/22/90 Date Complete: 5/22/90	
Groundwater Encountered @: 7'					
SAMPLE			Depth in Feet	Classification of Material	
ID	Depth	Blows/6"			
5-1	1'6" - 3'	6-9-9	6"	Concrete.	
			1'	Sand, medium, trace gravel, moist, brown, base course.	
5-2	3' - 4'6"	3-5-7		Silty clay, trace sand, gravel, coal, vegetation, stiff to very stiff, slightly plastic to plastic, moist, discolored dark gray to black, odor with thin beds of loose discolored dark gray to black, medium fine silty sand.	
	4'6" - 6'	3-5-7	5'		
5-3	6' - 7'6"	1-3-3	7'	Silty sand, fine, loose, saturated, dark gray to black with sheen, odor.	
5-4			10'		
	10'6" - 12'		10'6"	End of boring.	
			15'		
			20'		
Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 5'-10', PVC riser.					

MW 4106

TECHNA CORPORATION 44808 Helm Street Plymouth, Mi 48170	<u>PROJECT</u> GENERAL MOTORS CORPORATION AC ROCHESTER DIVISION	Boring #: OW-6 TPN 207-8001-10 Sheet: 1 of: 1
---	---	---

Boring Method: Hollow Stem Auger Surface Conditions: Concrete	Date Start: 5/22/90 Date Complete: 5/22/90
--	---

Groundwater Encountered @: 5'

SAMPLE			Depth in Feet	Classification of Material
ID	Depth	Blows/6"		
6-1	1'6" - 3'	7-8-9	1'	Concrete.
			1'2"	Silty sand, medium, trace gravel, base course.
6-2	3' - 4'6"	5-10 for 3"		Silty clay, trace sand and gravel, very stiff, plastic to very plastic, moist, variegated oxidized brown, brown, gray.
6-3	4'6" - 6'	7-10-14	5'	Silty sand, fine, medium, dense, saturated, brown.
6-4	9' - 10'6"	2-2-4	8'6"	Silty clay, trace gravel, medium stiff, slightly plastic to plastic, very moist, gray.
			10'	
			10'6"	End of boring.
			15'	
			20'	

Remarks: All samples were taken with a split spoon sampler. Stainless steel screen set from 4'-9', PVC riser.



TECHNA CORPORATION  
44808 Helm Street  
Plymouth, Mi 48170

PROJECT  
AC Rochester Dort Highway  
Part A Closure Investigation

Boring #:OW-7  
TPN:207-8001-11  
Sheet: 1 of: 2

Boring Method:4.25" I.D. Hollow Stem Auger  
Surface Conditions: Reinforced Concrete

Date Start:9-20-90  
Date Complete:9-20-90

Depth to Saturation: 23'-0"

SAMPLE			Depth in Feet	Classification of Material
Type	Depth	Blows/6"		
			5'	See boring log for OW-1 for stratigraphy 0' - 15' below existing grade
			10'	
			15'	
			20'	
				Silty clay, trace fine sand and gravel with layers of silt, plastic moist, moderately firm, gray. ( 20.3' - 20.5' saturated thin bed of silty sand, predominately medium, well graded, medium dense gray )

Remarks: 1. 10" PVC casing installed from surface to 15'-0" below grade  
2. Continued on page 2

mw 9107

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170	<b>PROJECT</b> AC Rochester Dort Hwy. Part A Closure Investigation	<b>Boring #:OW-7</b> <b>TPN:207-8001-11</b> <b>Sheet: 2 of: 2</b>
--	--	---

<b>Boring Method:</b> 4.25" I.D. Hollow Stem Auger <b>Surface Conditions:</b> Reinforced Concrete	<b>Date Start:</b> 9-20-90 <b>Date Complete:</b> 9-20-90
--	---

**Depth to Saturation:** 23'-0"

SAMPLE			Depth in Feet	Classification of Material
Type	Depth	Blows/6"		
			23.0'	Sand, predominately medium, trace silt clay and gravel, well graded, saturated, dense, gray.
			25'	
				End of boring 28'-0"
			30'	
			35'	
			40'	

**Remarks:** Bottom of well screen set at 27.0'

<b>TECHNA CORPORATION</b> 44808 Helm Street Plymouth, Mi 48170			<b>PROJECT</b> AC Rochester Dort Hwy. Part A Closure Investigation		Boring #:OW-8 TPN:207-8001-11 Sheet: 1 of: 1
Boring Method:4.25" I.D. Hollow Stem Auger Surface Conditions:Reinforced Concrete				Date Start:9-20-90 Date Complete:9-20-90	
Depth to Saturation: 5'-6"					
SAMPLE			Depth in Feet	Classification of Material	
Type	Depth	Blows/6"			
SS	6.0' - 8.0'	6-9-10-11	0.65'	Reinforced concrete	
			0.9'		
			1.1'	Base course fill, gray, moist.	
			2.0'		
				Sand and gravel fill, with spark plugs and clay, loose, moist, discolored.	
			5'	Sandy clay, trace fine gravel, plastic moist, moderately firm, oxidized brown.	
			5.5'		
				Silty sand, predominately fine, well graded, saturated, medium dense, oxidized brown.	
			10'	End of Boring 10'-0"	
			15'		
			20'		
Remarks:Bottom of well screen set at 9.5'					

TECHNA CORPORATION  
44808 Helm Street  
Plymouth, Mi 48170

PROJECT  
AC Rochester Dort Hwy.  
Part A Closure Investigation

Boring #:OW-9  
TPN:207-8001-11  
Sheet: 1 of: 1

Boring Method:4.25" I.D. Hollow Stem Auger  
Surface Conditions: Sand and Gravel

Date Start:9-20-90  
Date Complete:9-20-90

Depth to Saturation: 7'-0"

SAMPLE			Depth in Feet	Classification of Material
Type	Depth	Blows/6"		
SS	6.0' - 8.0'	2-2-7-8	3.0'	Sand and gravel fill, with clay, poorly graded, moist, medium dense, brown. moist.
			4.0'	Sandy loam, with clay and fine gravel, moist, moderately firm, dark brown.
			5'	
			7.2'	Sandy clay, trace fine gravel, plastic moist, oxidized brown.
			10'	Silty sand, predominately fine, well graded, saturated medium dense, oxidized brown.
				End of Boring 11'-6"
			15'	
			20'	

Remarks:Bottom of well screen set at 11.2'

TECHNA CORPORATION  
44808 Helm Street  
Plymouth, Mi 48170

**PROJECT**  
AC Rochester Dort Hwy.  
Part A Closure Investigation

Boring #:OW-10  
TPN:207-8001-11  
Sheet: 1 of: 1

Boring Method:4.25" I.D. Hollow Stem Auger  
Surface Conditions:Asphalt

Date Start:9-20-90  
Date Complete:9-20-90

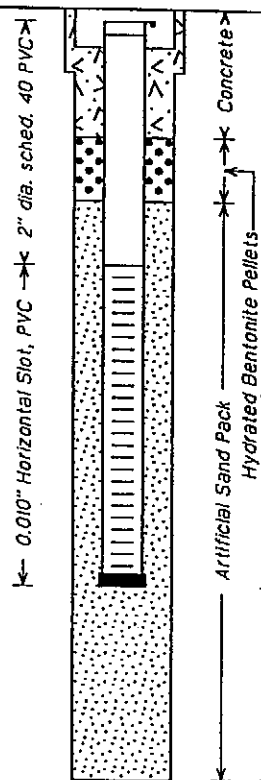
Depth to Saturation: 7'-4"

SAMPLE			Depth in Feet	Classification of Material
Type	Depth	Blows/6"		
			0.2'	Asphalt
			1.1'	Base course fill, brown, moist.
			5'	Sandy clay, w/ fine gravel slightly plastic, moist, moderately firm, mottled brown and gray with oxidation and organic hue, kerosine like odor.
			7.3'	Silty sand, predominately fine, well graded, saturated, medium dense, gray with organic hue, kerosine like odor.
			10'	
			15'	
			20'	
				End of Boring 12.0'

Remarks:Bottom of well screen set at 11.3'

Techna Corporation Plymouth, Michigan						Log of Monitoring Well OW14		
PROJECT: AC Rochester, Plant 400						LOCATION: Flint, Michigan		
PROJECT NO.: 01001-006						SURFACE ELEVATION:		
DATE START/FINISH: 5/23/94 - 5/23/94						INITIAL H2O LEVEL: Approximately 7 feet below grade		
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger						STATIC H2O ELEV.:		
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler						TOTAL DEPTH: 12 Feet		
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI						GEOLOGIST: (066)		
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
							CONCRETE (0-8")	
3	2 2 4 3	0		CL	CLAY, SILT AND SAND: fine to medium, trace fill, soft, damp, dark gray.			
	2 1 2 3	0		ML	CLAY AND SAND: fine, trace medium sand, very loose, moist, greenish gray organic material evident.			
6	2 2 5 5	0		CL	CLAY AND SILT: very soft, variegated greenish gray and light brown.			
9	2 4 5 6	0		SM	SAND: fine, some silt, loose, saturated, light brown.			
12				CL	CLAY: some silt, trace coarse sand, trace gravel, soft, damp, greenish gray.			
15						END OF BORING		
18								
21								

Techna Corporation Plymouth, Michigan					Log of Monitoring Well OW15			
PROJECT: AC Rochester, Plant 400					LOCATION: Flint, Michigan			
PROJECT NO.: 0L001-006					SURFACE ELEVATION:			
DATE START/FINISH: 5/24/94 - 5/24/94					INITIAL H2O LEVEL: Approximately 5 feet below grade			
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger					STATIC H2O ELEV.:			
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler					TOTAL DEPTH: 12 Feet			
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI					GEOLOGIST: (066)			
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	200				
						SP	SAND AND GRAVEL (0-6")	
						SM	SAND: fine to medium, very loose, damp to moist, light brown.	
3		4 2 2 6	0					
		2 1 2 2	0					
6							-Saturation encountered at 5'.	
		1 1 1	0					
9						CL	CLAY AND SILT: medium stiff, damp to moist, greenish gray.	
		5 6 7 8	0					
12							END OF BORING	
15								
18								
21								



Techna Corporation Plymouth, Michigan					Log of Monitoring Well OW16			
PROJECT: AC Rochester, Plant 400					LOCATION: Flint, Michigan			
PROJECT NO.: 01001-006					SURFACE ELEVATION:			
DATE START/FINISH: 5/25/94 - 5/25/94					INITIAL H2O LEVEL: Approximately 8 feet below grade			
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger					STATIC H2O ELEV.:			
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler					TOTAL DEPTH: 14 Feet			
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI					GEOLOGIST: (066)			
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
3		6335	0			SP	SAND AND GRAVEL (0-1')	<p>Concrete</p> <p>Hydrated Bentonite Pellets</p> <p>Artificial Sand Pack</p> <p>0.010" Horizontal Slot, PVC</p> <p>2" dia. sched. 40 PVC</p>
6		6334	0			CL	CLAY AND SILT: some fine to medium sand, trace gravel, trace fill, loose, moist, light brown, fill.	
9		6698	0			SM	CLAY, SILT AND SAND: fine to medium, trace gravel, very loose, damp to moist, light brown.	
12		9788				CL	SAND AND SILT: fine, loose, saturated, light brown.	
15						CL	CLAY AND SILT: trace fine sand, medium stiff, moist, greenish gray.	
18							END OF BORING	
21								



Techna Corporation Plymouth, Michigan						Log of Monitoring Well OW17		
PROJECT: AC Rochester, Plant 400						LOCATION: Flint, Michigan		
PROJECT NO.: 0L001-006						SURFACE ELEVATION:		
DATE START/FINISH: 5/23/94 - 5/23/94						INITIAL H2O LEVEL: Approximately 7 feet below grade		
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger						STATIC H2O ELEV.:		
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler						TOTAL DEPTH: 12 Feet		
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI						GEOLOGIST: (066)		
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
				0 200				
3		2	<1			CL	GRASS/TOPSOIL (0-6") CLAY AND SILT: some fine sand, moist, light brown, fill material evident.	
6		3	<1			SP	SAND: medium, trace coarse sand, trace gravel, very loose, damp to moist, light brown.	
		3	<1			CL	CLAY: soft sand, some fine to medium soft, damp, variegated light brown and greenish gray.	
9		4	<1			SM	SAND: fine, some silt, very loose, saturated, light brown.	
		8	<1			CL	CLAY AND SILT: medium stiff, damp to moist, greenish gray.	
12		5					END OF BORING	
15		5						
18		6						
21								

Techna Corporation Plymouth, Michigan						Log of Monitoring Well OW18		
PROJECT: AC Rochester, Plant 400						LOCATION: Flint, Michigan		
PROJECT NO.: OL001-006						SURFACE ELEVATION:		
DATE START/FINISH: 5/23/94 - 5/23/94						INITIAL H2O LEVEL: Approximately 7 feet below grade		
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger						STATIC H2O ELEV.:		
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler						TOTAL DEPTH: 12 Feet		
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI						GEOLOGIST: (066)		
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
				0 200			GRASS/TOPSOIL (0-6")	
3	3 3 4 7	3 3 3 8	<1			CL	CLAY AND SILT: fine sand, trace fill material, soft, damp, brown, variegated light brown and greenish gray. very thin bed of medium sand between 2'-4'	
6	3 4 5 8	3 4 5 8	<1			SM	SAND: fine, some silt, very loose, saturated, light brown.	
9	2 3 4 4		<1			CL	CLAY AND SILT: soft, damp to moist, greenish gray.	
12							END OF BORING	
15								
18								
21								

mw4119

<b>Techna Corporation</b> Plymouth, Michigan					<b>Log of Monitoring Well OW19</b>				
<b>PROJECT:</b> AC Rochester, Plant 400					<b>LOCATION:</b> Flint, Michigan				
<b>PROJECT NO.:</b> 0L001-006					<b>SURFACE ELEVATION:</b>				
<b>DATE START/FINISH:</b> 5/24/94 - 5/24/94					<b>INITIAL H2O LEVEL:</b> Approximately 5 feet below grade				
<b>DRILLING METHOD:</b> 4.25-inch ID Hollow Stem Auger					<b>STATIC H2O ELEV.:</b>				
<b>SAMPLING METHOD:</b> 2-foot by 2-inch Split Barrel Sampler					<b>TOTAL DEPTH:</b> 12 Feet				
<b>DRILLING COMPANY:</b> Environmental Drilling Svcs., Howell, MI					<b>GEOLOGIST:</b> (066)				

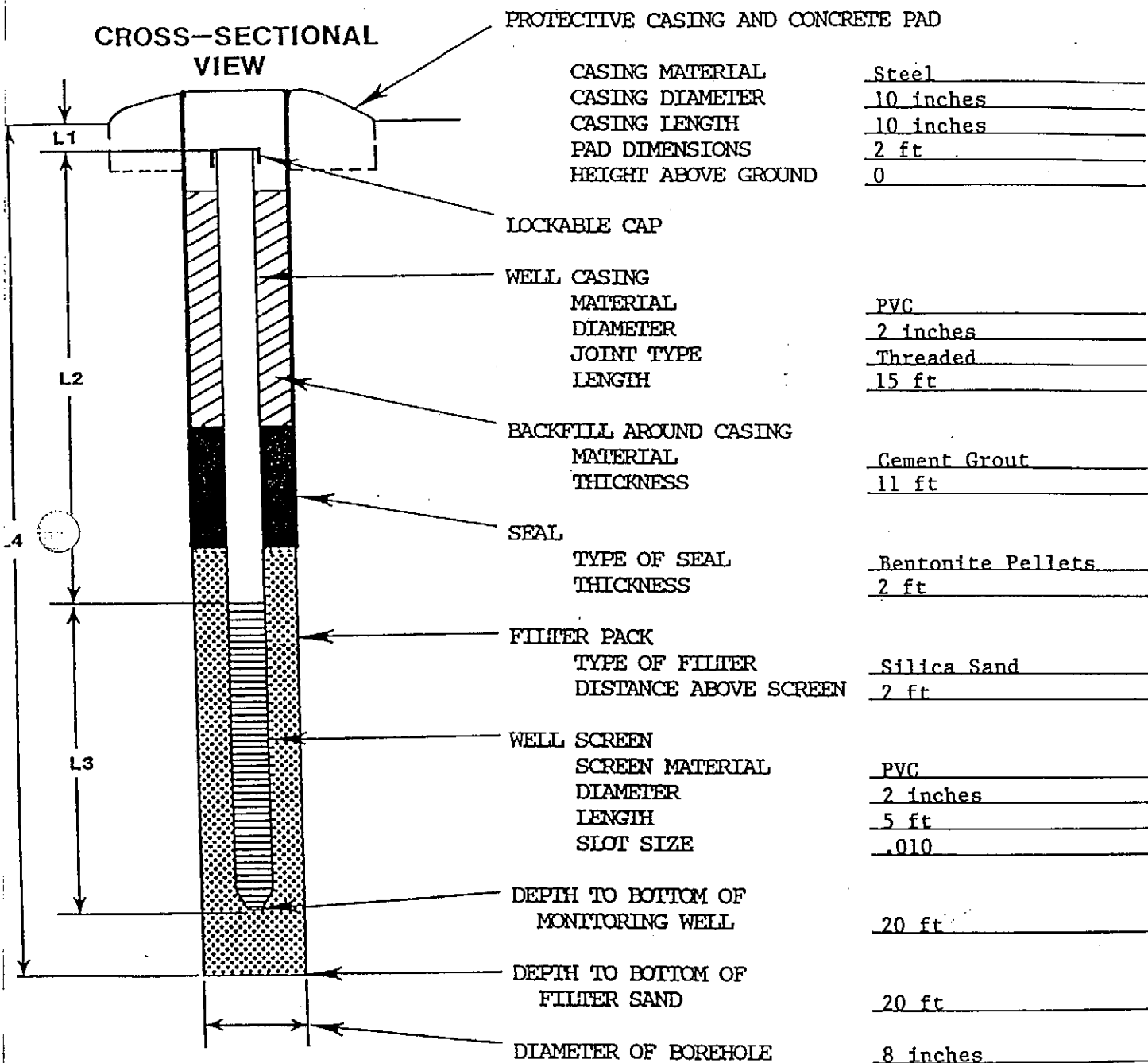
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
3		4 5 4 3	40		o o o	GP	GRAVEL (0-6")	<p style="font-size: small; margin-top: 10px;">             0.010" Horizontal Slot, PVC 2" dia. sched. 40 PVC              Concrete              Artificial Sand Pack              Hydrated Bentonite Pellets           </p>
6		7 6 4 4	4			SM	SAND: fine to medium, trace gravel, damp to moist, light brown.  -Saturation encountered at 5'.	
9		7 4 5 4	<1			CL	CLAY AND SILT: medium stiff, moist to wet, grades to moist with depth, greenish gray.	
12							END OF BORING	
15								
18								
21								

Techna Corporation Plymouth, Michigan						Log of Monitoring Well OW20		
PROJECT: AC Rochester, Plant 400						LOCATION: Flint, Michigan		
PROJECT NO.: 01001-006						SURFACE ELEVATION:		
DATE START/FINISH: 5/23/94 - 5/23/94						INITIAL H2O LEVEL: Approximately 5 feet below grade		
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger						STATIC H2O ELEV.:		
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler						TOTAL DEPTH: 12 Feet		
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI						GEOLOGIST: (066)		
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	200			CONCRETE (0-8")	
3		3 1 3 3	0			CL	CLAY: some coarse sand and gravel, trace fill, soft, damp to moist, variegated light brown and greenish gray.	
		3 1 2 5	2			SM	SAND AND SILT: very soft, greenish gray to dark gray.	
6		5 5 3 7	0			SM	SAND: fine to medium, some silt, very loose, saturated, yellowish orange to light brown.	
						SM	SAND: fine to medium, some silt, loose, saturated, light brown.	
							very thin bed of clay and silt (7.5')	
9			0			CL	CLAY AND SILT: soft, damp, gray.	
12							END OF BORING	
15								
18								
21								

Techna Corporation Plymouth, Michigan					Log of Monitoring Well OW21			
PROJECT: AC Rochester, Plant 400					LOCATION: Flint, Michigan			
PROJECT NO.: 0L001-006					SURFACE ELEVATION:			
DATE START/FINISH: 5/25/94 - 5/25/94					INITIAL H2O LEVEL: Approximately 17 feet below grade			
DRILLING METHOD: 4.25-inch ID Hollow Stem Auger					STATIC H2O ELEV.:			
SAMPLING METHOD: 2-foot by 2-inch Split Barrel Sampler					TOTAL DEPTH: 12 Feet			
DRILLING COMPANY: Environmental Drilling Svcs., Howell, MI					GEOLOGIST: (066)			
DEPTH feet	LAB SAMPLE NO.	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
0							CONCRETE (0-1')	<p>2" dia. sched. 40 PVC</p> <p>Concrete</p> <p>Hydrated Bentonite Pellets</p> <p>Artificial Sand Pack</p> <p>0.010" Horizontal Spt. PVC</p>
3		NOT TAKEN	<1			SM	SAND: fine to medium, some clay, little silt, trace fill, medium stiff, moist, sweet-burning odor, variegated light gray and olive gray.	
6			<1			CL	CLAY: some silt, little fine sand, medium stiff, moist, variegated greenish gray, olive gray and light gray.	
9			<1			SM	SAND: fine, some silt, very loose, saturated, light brown.	
12						CL	CLAY AND SILT: medium stiff, damp to moist, greenish gray.	
15							END OF BORING	
18								
21								

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



PROJECT AC Rochester-East - WT-3  
Water Treatment Plant

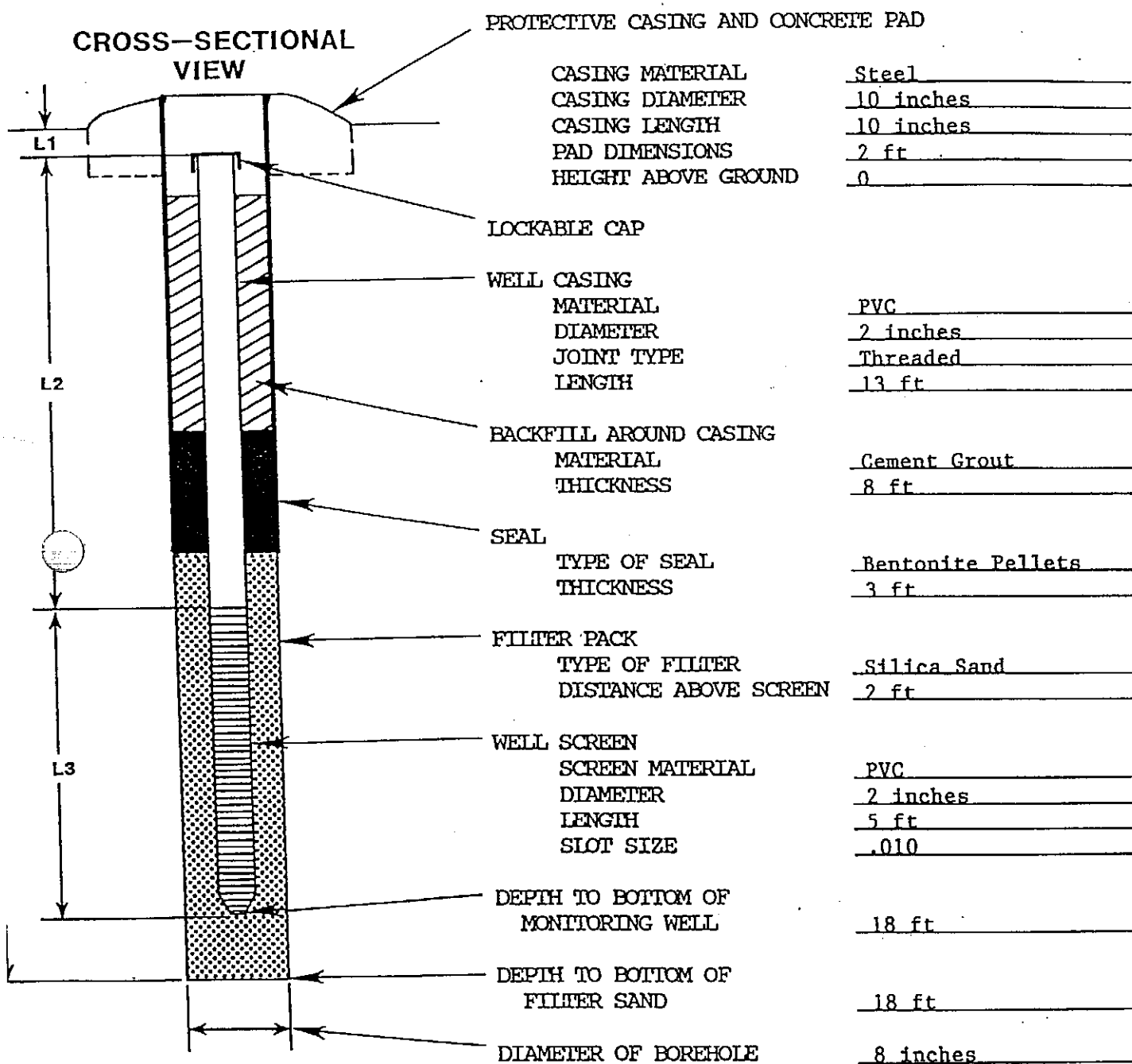
PROJECT NO. 91-123-0500

MONITORING WELL MW4301

L1 = 15 FT.  
L2 = 15 FT.  
L3 = 5 FT.  
L4 = 20 FT.

**ECT**  
Environmental Consulting & Technology, Inc.

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE



PROJECT AC Rochester-East - WT-3  
Water Treatment Plant

PROJECT NO. 91-123-0500

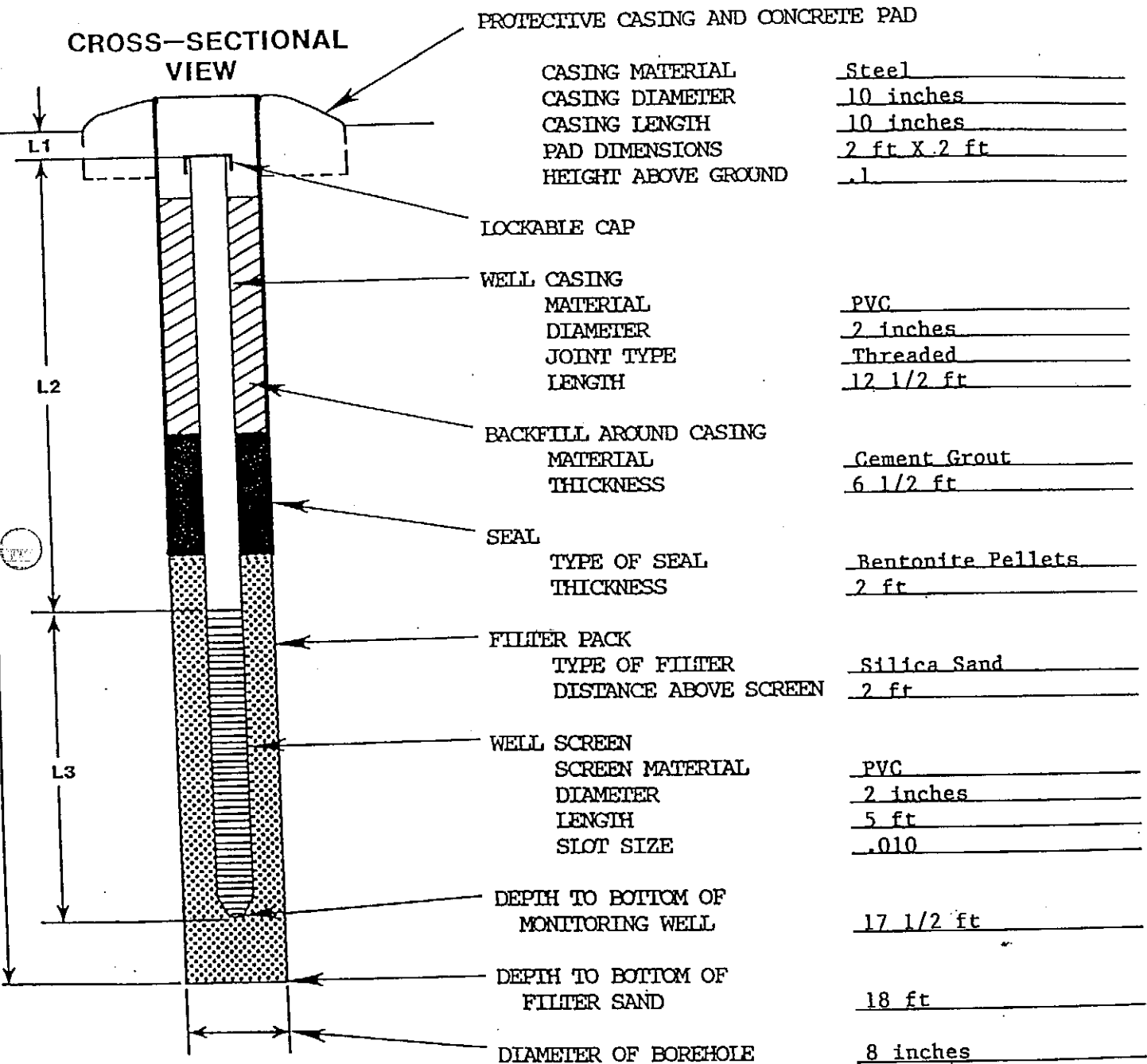
MONITORING WELL MW-2 MW4302

L1 = 0 FT.  
L2 = 13 FT.  
L3 = 5 FT.  
L4 = 18 FT.

**ECT**  
Environmental Consulting & Technology, Inc.

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



PROJECT AC Rochester-East - WT-3  
Water Treatment Plant

PROJECT NO. 91-123-0500

MONITORING WELL ~~MW~~ MW4303

L1 = .05 FT.  
L2 = 12 1/2 FT.  
L3 = 5 FT.  
L4 = 18 FT.

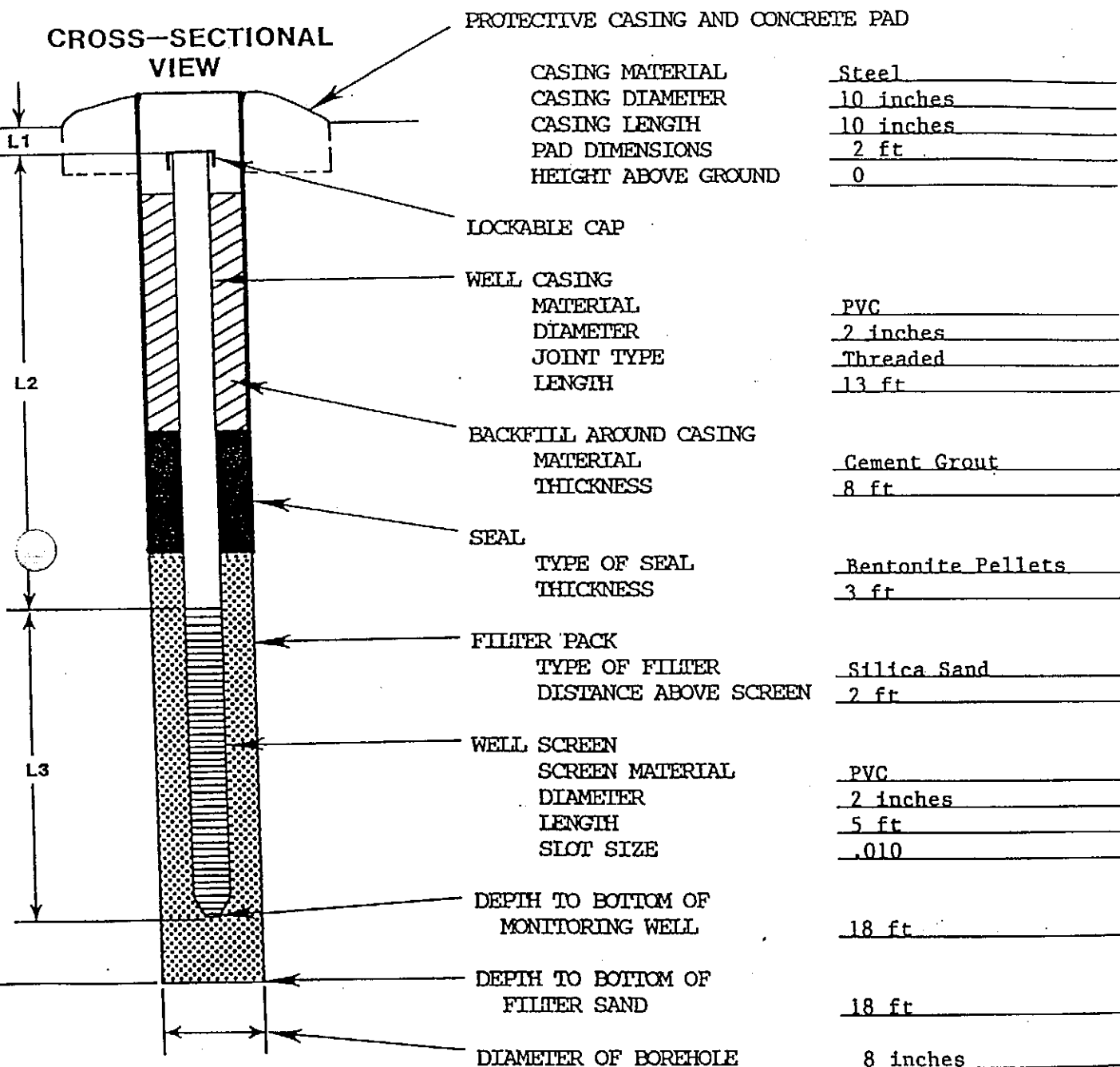
**ECT**

Environmental Consulting & Technology, Inc.



# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



PROJECT AC Rochester-East - WT-3  
Water Treatment Plant

PROJECT NO. 91-123-0500

MONITORING WELL ~~MW-4~~ MW4304

L1 = .15 FT.  
L2 = .13 FT.  
L3 = 5 FT.  
L4 = 18 FT.

**ECT**  
Environmental Consulting & Technology, Inc.

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW

PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL  
CASING DIAMETER  
CASING LENGTH  
PAD DIMENSIONS  
HEIGHT ABOVE GROUND

Steel  
10 inches  
10 inches  
2 ft X 2 ft  
0

LOCKABLE CAP

WELL CASING  
MATERIAL  
DIAMETER  
JOINT TYPE  
LENGTH

PVC  
2 inches  
Threaded  
13 ft

BACKFILL AROUND CASING  
MATERIAL  
THICKNESS

Cement Grout  
9 ft

SEAL

TYPE OF SEAL  
THICKNESS

Bentonite Pellets  
2 ft

FILTER PACK

TYPE OF FILTER  
DISTANCE ABOVE SCREEN

Silica Sand  
2 ft

WELL SCREEN

SCREEN MATERIAL  
DIAMETER  
LENGTH  
SLOT SIZE

PVC  
2 inches  
5 ft  
.010

DEPTH TO BOTTOM OF  
MONITORING WELL

18 ft

DEPTH TO BOTTOM OF  
FILTER SAND

18 ft

DIAMETER OF BOREHOLE

8 inches

PROJECT AC Rochester-East - WT-3  
Water Treatment Plant

PROJECT NO. 91-123-0500

MONITORING WELL ~~MW-3~~ mw4305

L1 = .05 FT.  
L2 = 13 FT.  
L3 = 5 FT.  
L4 = 18 FT.

**ECT**  
Environmental Consulting & Technology, Inc.

mw4401

AC ROCHESTER - EAST TANK #4005 FLINT, MICHIGAN						PROJECT NO.: 91-123-300 / MW - 4401		SHEET 1 OF 1	
						CONTRACTOR: ENVIRONMENTAL DRILLING SERVICES		DRILLING METHOD: HSA	
						DRILLER: TOM		DRILLING RIG: MOBILE DRILL B-57	
						START DATE: 10/23/91		COMPLETION DATE: 10/23/91	
LAND OWNER: AC ROCHESTER						ELEVATION:		LOGGED BY: M. MICHAELIS	
T Y P E	H U M B	B L # O S W	SAMPLE INTV. (FT)	SAMPLE REC. (IN)	DEPTH SCALE 1" = 4'	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION OBSERVATIONS		
							ORGANIC VAPOR ANALYZER (OVA) ppm	NOTES	
HA	--	0-4			2	Concrete (8") Pea gravel, with concrete, fill, wet.			
SS 1	2 2 2 2	4-6	8		4	Clay, gray, some sand, soft, moist.	20		
SS 2	7 10 13 18	8-10	24		8	Sand, brown to gray, clay lenses, dark staining, oil odor (sampled).	400		
SS 3	7 14 13 20	10-12	24		10	Sand, gray to light brown.	20		
SS 4	10 14 20 22	12-14	24		12	Sand, gray to light brown, wet.	10		
SS 5	3 5 10 12	14-16	24		14	Sand, light gray, medium to fine grained, wet to 14.5'. Clay, gray, trace of silt to 16.0' (sampled).	0		
					16	WELL CONSTRUCTION: SCREEN: 13.0 TO 8.0 FEET BLS. SAND: TO 6.0 FEET BLS. PELLETS: TO 4 FEET BLS. GROUT: TO SURFACE 2" PVC SCREEN AND RISER			
					18				
					20				
					22				
					24				
					26				

MW4402

AC ROCHESTER - EAST TANK #4005 FLINT, MICHIGAN				PROJECT NO.: 91-123-300 / MW - 4402		SHEET 1 OF 1	
				CONTRACTOR: ENVIRONMENTAL DRILLING SERVICES		DRILLING METHOD: HSA	
				DRILLER: TOM	DRILLING RIG: MOBILE DRILL B-57		
				START DATE: 10/24/91		COMPLETION DATE: 10/24/91	
LAND OWNER: AC ROCHESTER				ELEVATION:		LOGGED BY: H. MICHAELIS	

TYPE	H U M B	B L O W	SAMPLE INTV. (FT)	SAMPLE REC. (IN)	DEPTH SCALE 1" = 4'	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION OBSERVATIONS	
							ORGANIC VAPOR ANALYZER (OVA) ppm	NOTES
HA		--	0-4	-	2	Concrete (8") Pea gravel, with fill.		
SS 1		3 4 4 7	4-6	20	4	Clay, brown with gray mottling, trace of pebbles and sand, no odors, no stains.	0	
SS 2		8 9 12 12	6-8	24	6	Clay, brown with gray mottling, trace of pebbles, and sand, no odors, no stains.	4	
SS 3		4 8 11 12	8-10	24	8	Clay, brown with gray mottling, trace of pebbles, and sand, no odors, no stains-9'	0	
SS 4		7 15 22 29	10-12	24	10	Sand, brown, med.- fine grained, trace of silt, moist. Sand, gray, med. - fine grained, trace of silt, wet.	4	
SS 5		10 14 21 13	12-14	24	12	Sand, gray, med.- fine grained, trace of silt, wet.	4	
SS 6		6 6 8 9	14-16	24	14	Sand, gray, med.-fine grained, to 14.5'. Clay, gray, stiff, trace of pebbles (sampled).	0	
					16	<b>WELL CONSTRUCTION:</b> SCREEN: 14.0 TO 9.0 FEET BLS. SAND: TO 7.0 FEET BLS. PELLETS: TO 5 FEET BLS. GROUT: TO SURFACE 2" PVC SCREEN AND RISER		
					18			
					20			
					22			
					24			
					26			

mw4403

AC ROCHESTER - EAST TANK #4005 FLINT, MICHIGAN					PROJECT NO.: 91-123-300 / MW - 4403		SHEET 1 OF 1	
					CONTRACTOR: ENVIRONMENT DRILLING SERVICES		DRILLING METHOD: HSA	
					DRILLER: TOM		DRILLING RIG: MOBILE DRILL B-57	
					START DATE: 10/23/91		COMPLETION DATE: 10/23/91	
LAND OWNER: AC ROCHESTER					ELEVATION:		LOGGED BY: H. MICHAELIS	
T Y P E	N U M B E R	B U L #	S A M P L E I N T V. (FT)	S A M P L E R E C. (%)	D E P T H  S C A L E 1" = 4'	D E S C R I P T I O N O F M A T E R I A L S A N D C O N D I T I O N S	C O N T A M I N A T I O N O B S E R V A T I O N S	
							O R G A N I C V A P O R A N A L Y Z E R (OVA) ppm	N O T E S
HA		--	0-4	-	2	Concrete (9") Clay, brown with gray mottling, trace of sand.		
SS 1	5	7	4-6	4	4	Clay, brown with mottling, trace of sand, roots, and pebbles, dry.	20	
SS 2	10	7	6-8	24	6	Clay, brown with gray mottling, trace of coal, roots, and pebbles, some sand.	15	
SS 3	11	7	8-10	24	8	Clay, brown, some sand, to 8.2'.	60	
	12					Sand, medium to fine grained, light gray to brown, trace of silt, moist.		
SS 4	16	22	10-12	24	10	Sand, light gray, medium to fine grained, moist.	150	
	19							
SS 5	20	3	12-14	24	12	Sand, light gray, medium to fine grained, wet, sheen?? (sampled).	5	
	6							
SS 6	6	4	14-16	24	14	Sand, light gray, medium to fine grained, wet to 14.5'.	0	
	5					Clay, gray, trace of silt to 16.0' (sampled).		
	7							
					16	WELL CONSTRUCTION: SCREEN: 14.5 TO 9.5 FEET BLS. SAND: TO 7'3". PELLETS: TO 5'. GROUT: TO SURFACE 2" PVC SCREEN AND RISER		
					18			
					20			
					22			
					24			
					26			

pww4404

AC ROCHESTER - EAST TANK #4005 FLINT, MICHIGAN						PROJECT NO.: 91-123-300 / MW - 4404		SHEET 1 OF 1	
						CONTRACTOR: ENVIRONMENTAL DRILLING SERVICES		DRILLING METHOD: HSA	
						DRILLER: TOM		DRILLING RIG: MOBILE DRILL B-57	
						START DATE: 10/23/91		COMPLETION DATE: 10/23/91	
LAND OWNER: AC ROCHESTER						ELEVATION:		LOGGED BY: M. MICHAELIS	
T Y P E	N U M B E R	B L O C K #	SAMPLE INTV. (FT)	SAMPLE REC. (%)	DEPTH SCALE 1" = 4'	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION OBSERVATIONS		
							ORGANIC VAPOR ANALYZER (OVA) ppm	NOTES	
HA	--		0-4	-	2	Concrete (8") Pea gravel, with fill.			
SS 1	4 8 7		4-6	22	4	Clay, brown, some sand, trace of roots and pebbles, sand lenses.	2		
SS 2	4 7 7		6-8	24	6	Clay, brown, some sand, trace of roots, and pebbles, sand lenses to 7'. Sand, brown, med.- fine grained, moist a 8', staining, oil odor.	8		
SS 3	11 9 12 17		8-10	24	8	Sand, very dark staining with oil odor, medium to fine grained, trace of roots, brown at 9.5 (sampled).	20		
SS 4	14 20 18 20		10-12	24	10	Sand, brown, med. - fine grained, wet, no odor.	15		
SS 5	10 13 16 7		12-14	24	12	Sand, gray, med.- fine grained, wet.	2		
SS 6	4 5 7 8		14-16	24	14	Clay, gray, stiff, trace of pebbles (sampled).	0		
					16	WELL CONSTRUCTION: SCREEN: 13.0 TO 8.0 FEET BLS. SAND: TO 6.0 FEET BLS. PELLETS: TO 4 FEET BLS. GROUT: TO SURFACE 2" PVC SCREEN AND RISER			
					18				
					20				
					22				
					24				
					26				

mw4405  
(RW 5)

# ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC. Test Boring Log Form

Project No.: 91-123-300  
Contractor: EDS  
Driller: Tom Seymour  
Start Date: 5/26/93  
Elevation: NA  
Boring ID: RW-5

Site Location: AC-East Plant 3, Flint, MI  
Drilling Method: 8 3/8-inch (ID) HSA  
Drill Rig: Mobile Drill 8-57  
Completion Date: 5/26/93  
Logged By: Mona Michaelis  
Weather: 65 Deg. F., Moderate Breeze

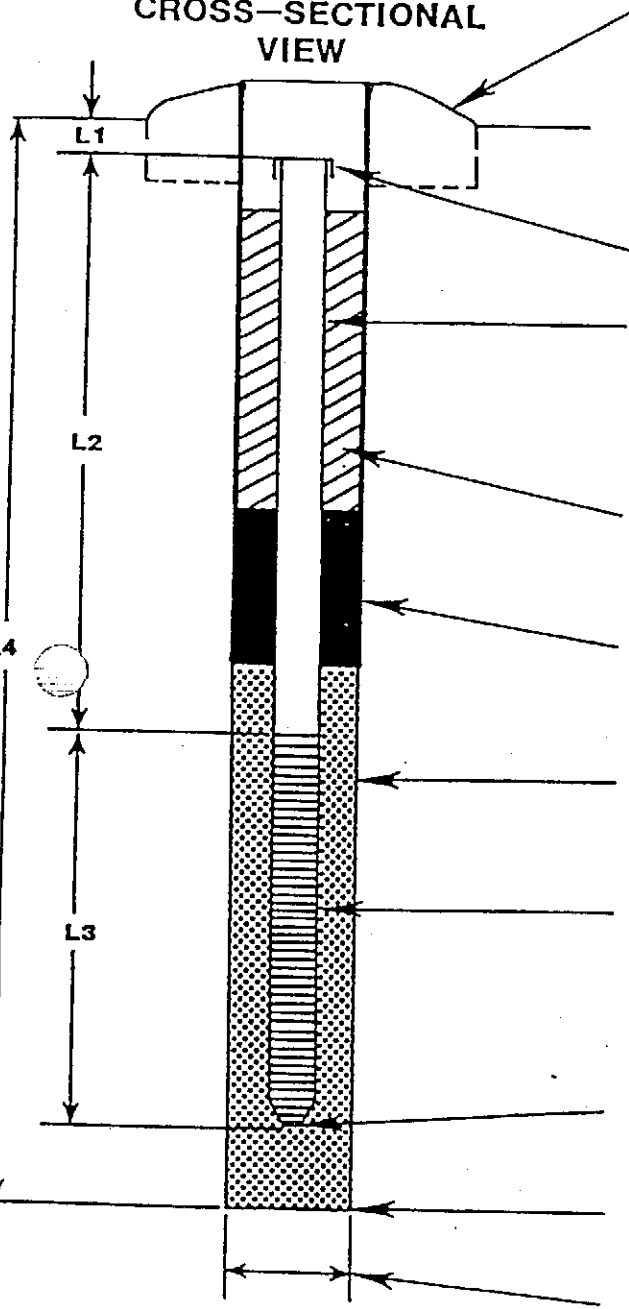
T y p e	N u m b	B l o w	Sample Interval (ft)	Rec. (%)	Depth (ft)	Material Description and Condition	PID (ppm)
					1	Dark gray clay and gravel.	
					2		
					3		
					4	Grades to brown clay with some fine sand.	
					5	Slight odor.	
					6	Brown sand.	
					7		
					8		
					9	Black stained sand.	18
					10	Brown wet sand.	
					11		
					12		
					13		
					14		
					15	E.O.B.	0
					16		
					17	Well Construction:	
					18	Screen: 14.5 - 9.5'	
					19	Filter pack coarse grained silica sand: 14.5 - 8'	
					20	Holeplug: 8 - 6'	
						Cement slurry: 6' - grade.	
						6-inch PVC casing and riser, flushmount.	

E.O.B. = End of boring.  
ss = Split-spoon  
HSA = Hollow Stem Auger

MW4405  
(RW5)

# MONITORING WELL CONSTRUCTION DETAILS FLUSH GRADE MANHOLE

## CROSS-SECTIONAL VIEW



### PROTECTIVE CASING AND CONCRETE PAD

CASING MATERIAL  
CASING DIAMETER  
CASING LENGTH  
PAD DIMENSIONS  
HEIGHT ABOVE GROUND

Steel

None

### LOCKABLE CAP

WELL CASING  
MATERIAL  
DIAMETER  
JOINT TYPE  
LENGTH

PVC

6-inch

Flush

BACKFILL AROUND CASING  
MATERIAL  
THICKNESS

Bentonite Grout

5-Foot

### SEAL

TYPE OF SEAL  
THICKNESS

Bentonite

2-Foot

### FILTER PACK

TYPE OF FILTER  
DISTANCE ABOVE SCREEN

Coarse Silica Sand

2-Foot

### WELL SCREEN

SCREEN MATERIAL  
DIAMETER  
LENGTH  
SLOT SIZE

PVC

6-inch

5-foot

.01-inch

DEPTH TO BOTTOM OF  
MONITORING WELL

14-Foot

DEPTH TO BOTTOM OF  
FILTER SAND

14.5-Foot

DIAMETER OF BOREHOLE

8-Inch

PROJECT MR-Plant 3/Tank 4005

PROJECT NO. 91-123-0300

MONITORING WELL RW-5

MW4405 Converted to RW5

L1 = \_\_\_\_\_ FT.  
L2 = 9 FT.  
L3 = 5 FT.  
L4 = \_\_\_\_\_ FT.

**ECT**

Environmental Consulting & Technology, Inc.



# ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC. Test Boring Log Form

Project No.: 91-123-300  
Contractor: EDS  
Driller: Tom Seymour  
Start Date: 5/26/93  
Elevation: NA  
Boring ID: SB-614406

Site Location: AC-East Plant 3, Flint, MI  
Drilling Method: HSA  
Drill Rig: Mobile Drill B-57  
Completion Date: 5/26/93  
Logged By: Mona Michaelis  
Weather: 65 Deg. F., Moderate Breeze

T y p e	S A M P E	B I O W	Sample Interval (ft)	Rec. (%)	Depth (ft)	Material Description and Condition	PID (ppm)
						Grassy top soil.	
					1	Gravel and sand.	0
					2		
					3		
ss		4, 5 7, 8	4 - 6'	80	4	Brown dry Clay, with some fine sand and trace of pebbles and organics.	0
					5		
ss		10, 12 12, 13	6 - 8'	80	6	Brown slightly moist sandy clay, with trace of pebbles	
					7		
ss	X	4, 6 11, 16	8 - 10'	80	8	Very moist sandy clay.	0.2
					9	Brown, wet, fine to medium grained sand, well sorted, with no stains.	
					10	Moist brown sand, no stains or odors.	0
					11		
					12		
					13		
ss	X	5, 5 7, 10	14 - 16		14	3" of brown sand with some clay.	0
						Gray stiff clay.	
					15		
					16	E.O.B.	
					17	Well Construction:	
						Screen: 14 - 9'	
					18	Filter pack coarse grained silica sand: 14 - 7'	
						Holeplug: 7 - 5'	
					19	Grout: 5' to grade.	
						2-inch PVC casing and riser	
					20		

E.O.B. = End of boring.  
ss = Split-spoon  
HSA = Hollow Stem Auger

# ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC. Test Boring Log Form

Project No.: 91-123-300  
Contractor: EDS  
Driller: Tom Seymour  
Start Date: 5/26/93  
Elevation: NA  
Boring ID: SB-7/~~123-300~~7

Site Location: AC-East Plant 3, Flint, MI  
Drilling Method: HSA  
Drill Rig: Mobile Drill B-57  
Completion Date: 5/26/93  
Logged By: Mona Michaelis  
Weather: 65 Deg. F., Moderate Breeze

mw 4407

Type	Sample	Borehole	Sample Interval (ft)	Rec. (%)	Depth (ft)	Material Description and Condition	PID (ppm)
						Gravel	
					1	Brown clay with black gravel.	
					2		
					3		
ss		7, 10 13, 16	4 - 6'	100	4	Dry brown clay with trace of fine sand and pebbles.	1.3
					5		
ss		13, 18 21, 21	6 - 8'	30	6	Same as above.	1.0
					7		
ss		9, 27 29, 28	8 - 10'	90	8	Wet, brown, fine to medium grained sand.	3.0
					9		
ss	X	6, 12 12, 17	10 - 12	50	10	Wet, brown, fine to medium grained sand with traces of organics.	3.0
					11		
ss	X	8, 13 17, 18	12 - 14'	75	12	Same as above.	2.7
					13		
					14	E.O.B	
					15	Well Construction:	
						Screen: 14 - 9'	
					16	Filter pack coarse grained silica sand: 14 - 7'	
						Holeplug: 7 - 5'	
					17	Grout: 5' - grade.	
						2-inch PVC riser and casing, flushmount.	
					18		
					19		
					20		

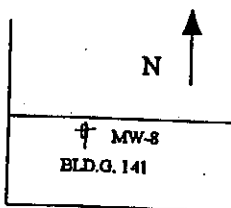
E.O.B. = End of boring.

ss = Split-spoon

HSA = Hollow Stem Auger

MW 4408

**LOCATION MAP**



<b>WELL NUMBER</b> MW-8	<b>PAGE</b> 1 of 1
<b>DATE</b> 07/22/94	<b>LOCATION</b> ACR UST #4005
<b>LOCATED BY</b> Dennis Prevo	<b>WEATHER</b> 85, Partly Cloudy
<b>DRILLING METHOD</b> Hand Auger	<b>DRILLED BY:</b> EDS
<b>GRAVEL PACK</b> washed silica sand	<b>SAMPLING METHOD</b> Hand Auger
	<b>SEAL</b> Bentonite Chips

**CASING ELEVATION**

NA

**CASING TYPE**

PVC

**DIAMETER**

2-inch

**LENGTH**

7.5

**HOLE DIA**

12"

**SCREEN TYPE**

PVC

**SLOT** 10

**DIAMETER**

2-inch

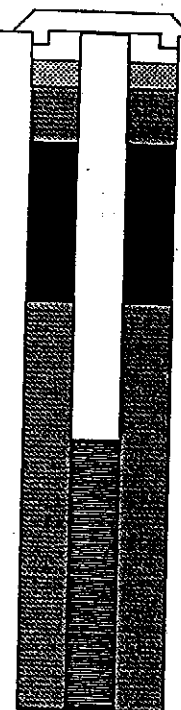
**LENGTH**

5-Feet

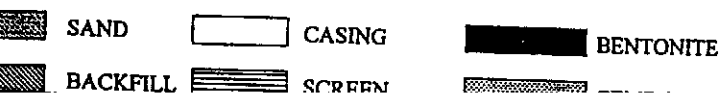
**TOTAL DEPTH**

12.5 Feet

MOISTURE CONTENT	SORTING	SAMPLE FOR ANALYSIS	ORGANIC VAPORS (ppm)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
				0			Reinforced concrete (6-inches)	
				1				
				2				
				3				
				4				
			1.2	5	6"		Brown, medium to coarse grained sand with clay.	
				6				
			1.5	7	12"		Brown sandy clay, dry.	
				8				
			1.8	9	12"		Brown sandy clay, dry.	
			4.7	10	6"		Moist, grayish brown medium grained sand with oil odor.	
				11				
			2.1	12	12"		Wet brown gray silty sand with possible oil sheen.	
			3.5	13	12"		Wet brown gray silty sand.	
				14			E.O.B. @ 13 feet.	
				15			Note: Hole collapse @ 13 feet.	
				16				
				17				
				18				
				19				
				20				



**LEGEND**



WATER LEVEL

LOCATION MAP

N

BLD.G. 141

MW-1

WELL NUMBER

MW4410

DATE

07/22/94

LOCATED BY

Dennis Prevo

DRILLING METHOD

Hand Auger

GRAVEL PACK

washed silica sand

PAGE

1 of 1

LOCATION

ACR UST #4005

WEATHER

85, Partly Cloudy

DRILLED BY

EDS

SAMPLING METHOD

Hand Auger

SEAL

Bentonite Chips

CASING ELEVATION

NA

CASING TYPE

PVC

DIAMETER

2-inch

LENGTH

7.5

HOLE DIA

12"

SCREEN TYPE

PVC

SLOT

10

DIAMETER

2-inch

LENGTH

5-Feet

TOTAL DEPTH

12.5 Feet

MOISTURE CONTENT	SORTING	SAMPLE FOR ANALYSIS	ORGANIC VAPORS (ppm)	DEPTH	SAMPLE RECOVERY	PENETRATION RESISTANCE	LITHOLOGY/REMARKS	WELL COMPLETION
				0			Reinforced concrete (6-inches)	
				1				
				2				
				3				
				4				
			3.8	5	12"		Damp, fine to medium grained brown sand with cutting oil odor.	
				6				
				7				
			5.3	8	12"		Damp, fine to medium grained brown sand with cutting oil odor. V. Damp, fine grained silty sand with oil odor. Observe: gray, fine grained silty sand, v. damp.	
				9				
				10				
			5.1	11	12"		Damp to wet, fine grained, silty sand, gray with oil odor.	
				12			Wet, fine grained silty sand with black staining Gray/black silty sand.	
			4.2	13	6"		Gray/black silty clay. E.O.B. @ 12.5 feet.	
				14				
				15				
				16				
				17				
				18				
				19				
				20				

LEGEND

SAND

CASING

BENTONITE

WATER LEVEL

BACKFILL

SCREEN

CEMENT

Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4601

PROJECT: *Delphi Energy & Chassis Systems*

LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

PROJECT NO.: *40065-001*

SURFACE ELEVATION:

DATE START/FINISH: *4/3/00*

INITIAL H2O LEVEL: *8.0*

DRILLING METHOD: *4 1/4" Hollow Stem Augers*

STATIC H2O ELEV.:

SAMPLING METHOD: *2 foot x 2 inch Split barrel Sampler*

TOTAL DEPTH: *13.5 Feet*

DRILLING COMPANY: *Stearns Drilling*

LOGGED BY: *S. Collinge*

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	0.0 to 2.0	2 5 5 5 5	<1		x x x x x	SP	Sand little silt, Sand fine to coarse, mostly fine, organics, loose, moist, yellowish brown	<p>2" PVC Riser</p> <p>Bentonite Chips</p> <p>Concrete</p> <p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p>
	2.0 to 4.0	2 3 3 3 5	<1		x x x x x	SP	Sand, fine to coarse, mostly fine to medium, moist, light tan	
3						CL	Sand trace silt, gravels, sand fine to coarse, mostly medium to coarse, gravels subrounded, fine, moist, medium brown	
							Clay little silt, soft, moist, grayish brown with iron staining	
	4.0 to 6.0	2 3 3 3 5	<1					
6								
	6.0 to 8.0	1 2 4 8	<1			SP	Sand trace silt, sand fine, wet, grayish brown	
							saturated at 8 ft.	<p>Bentonite Chips</p> <p>Concrete</p> <p>Filter Sand</p> <p>2" PVC 0.010 Slotted Screen</p>
9	8.0 to 10.0	6 8 12 15						
12	11.5 to 13.5	4 4 8 12				CL	Clay, stiff, moist, gray	<p>Bentonite Chips</p> <p>Concrete</p> <p>Filter Sand</p> <p>2" PVC 0.010 Slotted Screen</p>
						SP	Sand trace silt, sand fine, wet, gray	
							END OF BORING At 13.5 Feet	
15								
18								
21								

Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4602

PROJECT: *Delphi Energy & Chassis Systems*

LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

PROJECT NO.: *40065-001*

SURFACE ELEVATION:

DATE START/FINISH: *4/3/00*

INITIAL H2O LEVEL: *8.0*

DRILLING METHOD: *4 1/4" Hollow Stem Augers*

STATIC H2O ELEV.:

SAMPLING METHOD: *2 foot x 2 inch Split barrel Sampler*

TOTAL DEPTH: *15.0 Feet*

DRILLING COMPANY: *Stearns Drilling*

LOGGED BY: *S. Collinge*

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	0.0 to 2.0	2 2 4 8	<1		x x x x x x x x x x	SP	Sand little silt, Sand fine to coarse, mostly fine, organics, loose, moist, dark brown	<p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p> <p>Bentonite Chips</p> <p>Concrete</p> <p>Filter Sand</p>
3						CL	Clay trace silt, fine sand, soft to stiff, moist, gray with iron staining	
6	5.0 to 7.0	1 1 2 2	<1					
9						SP	Sand trace silt, sand fine, moist, gray  saturated at 8 ft	
12	10.0 to 12.0	8 9 12 7						
	13.0 to 15.0	2 2 2 3	<1			CL	Clay, stiff, moist, gray	<p>2" PVC 0.010 Slotted Screen</p> <p>Bentonite Chips</p> <p>Concrete</p> <p>Filter Sand</p>
15							END OF BORING At 15.0 Feet	
18								
21								

Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4603

PROJECT: Delphi Energy & Chassis Systems

LOCATION: 1300 North Dort Highway, Plant 400, Flint Mi

PROJECT NO.: 40065-001

SURFACE ELEVATION:

DATE START/FINISH: 4/3 & 4/00

INITIAL H2O LEVEL: 16.0

DRILLING METHOD: 4 1/4" Hollow Stem Augers

STATIC H2O ELEV.:

SAMPLING METHOD: 2 foot x 2 inch Split barrel Sampler

TOTAL DEPTH: 19.0 Feet

DRILLING COMPANY: Stearns Drilling

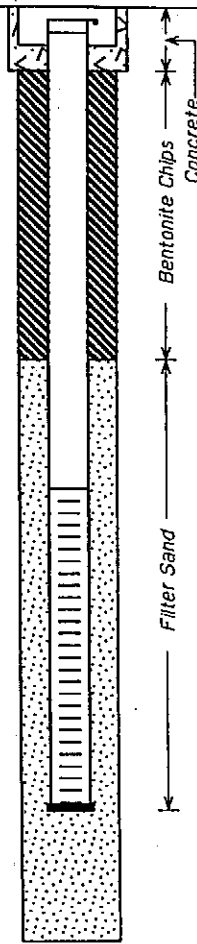
LOGGED BY: S. Collinge

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	1.0 to 3.0	3 3 5 12	<1		x x x	SP CL	Sand little silt, Sand fine to coarse, mostly fine, organics, loose, moist, dark brown Clay little sand, trace silts, sand fine, stiff, moist, yellowish brown with iron staining	<p>Concrete</p> <p>Bentonite Chips</p> <p>Filter Sand</p> <p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p>
3								
6	5.0 to 7.0	3 2 2 2	<1			SP	Sand, fine to medium mostly fine, moist yellowish brown	
9	7.0 to 9.0	2 2 2 3	<1					
12	10.0 to 12.0	2 2 2 4	<1				material wet at 11 ft	
	12.0 to 14.0	3 4 4 5	<1					<p>Concrete</p> <p>Bentonite Chips</p> <p>Filter Sand</p> <p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p>
15								
18	16.0 to 18.0	3 4 4 7	<1				saturated at 16 ft	
21							END OF BORING At 19.0 Feet	

Haley & Aldrich of Michigan Plymouth, Michigan						Log of Monitoring Well MW4604					
PROJECT: Delphi Energy & Chassis Systems						LOCATION: 1300 North Dort Highway, Plant 400, Flint Mi					
PROJECT NO.: 40065-001						SURFACE ELEVATION:					
DATE START/FINISH: 4/4/00						INITIAL H2O LEVEL: 17.0					
DRILLING METHOD: 4 1/4" Hollow Stem Augers						STATIC H2O ELEV.:					
SAMPLING METHOD: 2 foot x 2 inch Split barrel Sampler						TOTAL DEPTH: 20.0 Feet					
DRILLING COMPANY: Stearns Drilling						LOGGED BY: S. Collinge					
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM			
			VALUES	PROFILE							
	1.0 to 3.0	2 2 2 3	<1		x x x x x x x x x x	SP	Sand little silt, sand fine to medium, organics, moist, dark brown				
3						SP	Sand trace silt, gravel, sand fine to medium, gravel fine subrounded, moist, yellowish brown				
6	5.0 to 7.0	1 1 1 1	<1				3" Clay some silt, soft, moist, dark grayish brown				
9	9.0 to 11.0	1 (12") 1	<1								
12							2" silt seam				
15	14.0 to 16.0	4 6 8 10	<1				color change to light tan saturated at 17.0				
18	17.0 to 19.0	4 4 5 9	<1								
21							END OF BORING At 20.0 Feet				



Haley & Aldrich of Michigan Plymouth, Michigan							Log of Monitoring Well MW4605		
PROJECT: Delphi Energy & Chassis Systems							LOCATION: 1300 North Dort Highway, Plant 400, Flint Mi		
PROJECT NO.: 40065-001							SURFACE ELEVATION:		
DATE START/FINISH: 4/4/00							INITIAL H2O LEVEL: 18.0		
DRILLING METHOD: 4 1/4" Hollow Stem Augers							STATIC H2O ELEV.:		
SAMPLING METHOD: 2 foot x 2 inch Split barrel Sampler							TOTAL DEPTH: 20.0 Feet		
DRILLING COMPANY: Stearns Drilling							LOGGED BY: S. Collinge		
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM	
			VALUES	PROFILE					
			0	50					
	1.0 to 3.0	1 (12") 2 1	<1		XXXXXX	SP	Sand little silt, sand fine to medium, moist, dark brown	<p>Concrete</p> <p>Bentonite Chips</p> <p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p>	
3					XXXXXX		Sand little silt, trace clay, sand fine to meium moistly fine, moist, mottled dark brown and yellowish brown with iron staining		
	5.0 to 7.0	3 4 7 9	<1		XXXXXX	CL	Clay little sand, trace silt, sand fine, moist, soft, yellowish brown		
6					XXXXXX				
	7.5 to 9.5	3 7 9 12	<1		XXXXXX	SP	Sand, fine to coarse, mostly medium to coarse, moist, yellowish brown		
9					XXXXXX	CL	Clay little silt, stiff, moist, yellowish brown (silt in very thin layers, horizontally throughout sample)		
					XXXXXX				
12	12.0 to 14.0	2 3 3 5	<1		XXXXXX		Clay trace silt, soft, moist, gray		
15	15.0 to 17.0	6 10 12 13	<1		XXXXXX	SP	Sand trace silt, sand fine, moist, yellowish brown		
					XXXXXX		3" silt layer very moist		
18	18 to 20	4 6 6 6	<1		XXXXXX		saturated at 18.0		
21							END OF BORING At 20.0 Feet		

Haley & Aldrich of Michigan Plymouth, Michigan						Log of Monitoring Well MW4606			
PROJECT: Delphi Energy & Chassis Systems						LOCATION: 1300 North Dort Highway, Plant 400, Flint Mi			
PROJECT NO.: 40065-001						SURFACE ELEVATION:			
DATE START/FINISH: 4/4/00						INITIAL H2O LEVEL: 9.0			
DRILLING METHOD: 4 1/4" Hollow Stem Augers						STATIC H2O ELEV.:			
SAMPLING METHOD: 2 foot x 2 inch Split barrel Sampler						TOTAL DEPTH: 14.5 Feet			
DRILLING COMPANY: Stearns Drilling						LOGGED BY: S. Collinge			
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM	
			VALUES	PROFILE					
3	1.0 to 3.0	4 4 3 2	<1		x x x x x x x x x x x x x x x x	SP	Sand little silt, sand fine to medium, organics, moist, dark brown		
							Sand trace silt, gravel, sand fine to medium, gravel fine subrounded, moist, yellowish brown		
							Sand, sand fine to coarse, mostly fine to medium, moist, dark brown and yellowish brown mottled		
6	5.0 to 7.0	2 2 2 4	<1			CL	Clay trace sand, silt, sand fine, soft, moist, gray with iron staining		
							color change to mottled yellowish brown and gray mottled with iron staining		
9	9.0 to 11.0	1 2 4 5			.....	SP	Sand trace silt, sand fine, saturated, yellowish brown		
							color change to gray		
12	12.5 to 14.5	1 2 4 5					END OF BORING At 14.5 Feet		
15									
18									
21									




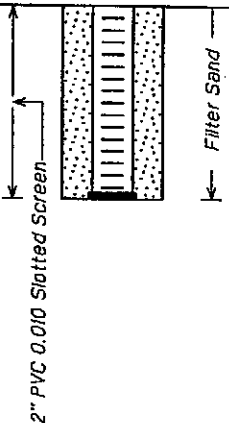
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Haley & Aldrich of Michigan Plymouth, Michigan						Log of Monitoring Well MW4609		
PROJECT: Delphi Energy & Chassis Systems						LOCATION: 1300 North Dort Highway, Plant 400, Flint Mi		
PROJECT NO.: 40065-001						SURFACE ELEVATION:		
DATE START/FINISH: 4/5/00						INITIAL H2O LEVEL: 9.0		
DRILLING METHOD: 4 1/4" Hollow Stem Augers						STATIC H2O ELEV.:		
SAMPLING METHOD: 2 foot x 2 inch Split barrel Sampler						TOTAL DEPTH: 12.5 Feet		
DRILLING COMPANY: Stearns Drilling						LOGGED BY: S. Collinge		
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
3	1.0 to 3.0	5 5 4 3	<1			SP	Asphalt Sand trace silt, Sand fine to medium, loose, moist, yellowish brown	 2" PVC Riser 2" PVC 0.010 Slotted Screen Filter Sand Bentonite Chips Concrete
6	4.0 to 6.0	2 1 2 1	<1			CL	Clay trace silt, stiff, damp, yellowish brown	
9	8.0 to 10.0	2 2 3 4	<1			SP	Sand little silt, sand fine, saturated, yellowish brown,	
12							END OF BORING At 12.5 Feet	
15								
18								
21								

Haley & Aldrich of Michigan Plymouth, Michigan					<b>Log of Monitoring Well MW4610</b>				
PROJECT: <i>Delphi Energy &amp; Chassis Systems</i>					LOCATION: <i>1300 North Dort Highway, Plant 400, Flint Mi</i>				
PROJECT NO.: <i>40065-001</i>					SURFACE ELEVATION:				
DATE START/FINISH: <i>4/5/00</i>					INITIAL H2O LEVEL: <i>20.0</i>				
DRILLING METHOD: <i>4 1/4" Hollow Stem Augers</i>					STATIC H2O ELEV.:				
SAMPLING METHOD: <i>2 foot x 2 inch Split barrel Sampler</i>					TOTAL DEPTH: <i>24.0 Feet</i>				
DRILLING COMPANY: <i>Stearns Drilling</i>					LOGGED BY: <i>S. Collinge</i>				

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
				0 300				
	1.0 to 3.0	2 2 2 3	<1		x x x x x	SP	Sand little silt, sand fine to medium, moist, dark brown	<p style="text-align: right; margin-right: 50px;">Concrete</p> <p style="text-align: right; margin-right: 50px;">Bentonite Chips</p> <p style="text-align: right; margin-right: 50px;">Filter Sand</p> <p style="text-align: right; margin-right: 50px;">2" PVC 0.010 Slotted Screen</p> <p style="text-align: right; margin-right: 50px;">2" PVC Riser</p>
3					x x x x x	CL/SP	Clay and sand, sand fine to medium, soft, moist, yellowish brown	
	4.0 to 6.0	2 2 2 4	<1		x x x x x			
6					x x x x x			
	8.0 to 10.0	1 2 2 3	250	██████████	x x x x x			
9					x x x x x			
	11.0 to 13.0	2 5 5 7	<1		x x x x x	CL	Clay little silt, stiff, slight to strong odor, damp, greenish gray	
12					x x x x x		No odor	
	14.0 to 16.0	3 5 8 11	<1		x x x x x			
15					x x x x x			
	17.5 to 19.5	3 5 7 19	<1		x x x x x			
18					x x x x x			
	19.5 to 21.5	6 11 15 21	<1		x x x x x	SP	Clay little sand, sand fine, stiff, moist, gray, (sand seams running in thin layers through sample)	
21					x x x x x		Sand little silts, sand fine to medium, mostly fine, saturated, gray	

Haley & Aldrich of Michigan Plymouth, Michigan						Log of Monitoring Well MW4610		
PROJECT: <i>Delphi Energy &amp; Chassis Systems</i>						LOCATION: <i>1300 North Dort Highway, Plant 400, Flint Mi</i>		
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	300				
24						SP	END OF BORING At 24.0 Feet	
27								
30								
33								
36								
39								
42								
45								

Haley & Aldrich of Michigan Plymouth, Michigan					Log of Monitoring Well MW4611			
PROJECT: <i>Delphi Energy &amp; Chassis Systems</i>					LOCATION: <i>1300 North Dort Highway, Plant 400, Flint Mi</i>			
PROJECT NO.: <i>40065-001</i>					SURFACE ELEVATION:			
DATE START/FINISH: <i>4/5/00</i>					INITIAL H2O LEVEL: <i>7.0</i>			
DRILLING METHOD: <i>4 1/4" Hollow Stem Augers</i>					STATIC H2O ELEV.:			
SAMPLING METHOD: <i>2 foot x 2 inch Split barrel Sampler</i>					TOTAL DEPTH: <i>11.0 Feet</i>			
DRILLING COMPANY: <i>Stearns Drilling</i>					LOGGED BY: <i>S. Collinge</i>			
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	1.0 to 3.0	1 2 1 2	<1		GP	GP	Gravels and sand, gravels rounded to subrounded, fine, sand fine to coarse, moist, med brown	
3					SP/CL	SP/CL	Sand and clay, sand fine to medium, loose, moist yellowish brown	
	4.0 to 6.0	1 2 2 2	<1				color change to greenish brown	
6								
	8.5 to 10.5	2 3 4 3	<1		ML	ML	Sand and silt, sand fine, saturated, yellowish brown	
9					CL	CL	Silt, moist, gray	
					SP	SP	Clay little silt, damp, stiff, gray	
12							END OF BORING At 11.0 Feet	
15								
18								
21								



Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4612

PROJECT: *Delphi Energy & Chassis Systems*

LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

PROJECT NO.: *40065-001*

SURFACE ELEVATION:

DATE START/FINISH: *4/6/00*

INITIAL H2O LEVEL: *13.0*

DRILLING METHOD: *4 1/4" Hollow Stem Augers*

STATIC H2O ELEV.:

SAMPLING METHOD: *2 foot x 2 inch Split barrel Sampler*

TOTAL DEPTH: *17.0 Feet*

DRILLING COMPANY: *Stearns Drilling*

LOGGED BY: *P. Turnell*

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	1.0 to 3.0	3 5 6 7	<1			GP	Gravels and sand, fine, sand fine to coarse, moist, medium brown	<p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p> <p>Bentonite Chips</p> <p>Concrete</p>
3						CL	Clay, trace silt, damp, yellowish brown	
	4.0 to 6.0	2 5 6 10	<1			SP	as above, change to mottled gray and brown	
6								
	7.0 to 9.0	2 6 9 8	<1			CL	Sand and silt, sand fine, moist, yellowish brown	
9								
	9.0 to 11.0	2 4 5 5	<1			CL	as above, change to saturated	<p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p> <p>Bentonite Chips</p> <p>Concrete</p>
12								
	11.0 to 13.0	3 3 6 7	<1			CL	Clay little silt, damp, soft, gray	
15								<p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p> <p>Bentonite Chips</p> <p>Concrete</p>
18							END OF BORING At 17.0 Feet	
21								

Haley & Aldrich of Michigan Plymouth, Michigan							Log of Monitoring Well MW4613	
PROJECT: <i>Delphi Energy &amp; Chassis Systems</i>							LOCATION: <i>1300 North Dort Highway, Plant 400, Flint Mi</i>	
PROJECT NO.: <i>40065-001</i>							SURFACE ELEVATION:	
DATE START/FINISH: <i>4/6/00</i>							INITIAL H2O LEVEL: <i>10.5</i>	
DRILLING METHOD: <i>4 1/4" Hollow Stem Augers</i>							STATIC H2O ELEV.:	
SAMPLING METHOD: <i>2 foot x 2 inch Split barrel Sampler</i>							TOTAL DEPTH: <i>13.5 Feet</i>	
DRILLING COMPANY: <i>Stearns Drilling</i>							LOGGED BY: <i>P. Turnell</i>	
DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
	1.0 to 3.0	4 5 7 8	<1			GP	Gravels and sand, fine, sand fine to coarse, moist, medium brown	<p style="text-align: center;">2" PVC Riser</p> <p style="text-align: center;">Bentonite Chips</p> <p style="text-align: center;">Filter Sand</p> <p style="text-align: center;">2" PVC 0.010 Slotted Screen</p>
3						CL	Clay, trace silt, damp, mottled gray and brown	
6	5.0 to 7.0	3 4 6 7	<1					
9	8.0 to 10.0	9 8 10 13	<1					
12	11.0 to 13.0	4 4 3 2					as above, change saturated at 10.5 ft	
15							END OF BORING At 13.5 Feet	
18								
21								

Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4614

PROJECT: *Delphi Energy & Chassis Systems*

LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

PROJECT NO.: *40065-001*

SURFACE ELEVATION:

DATE START/FINISH: *4/6/00*

INITIAL H2O LEVEL: *10.5*

DRILLING METHOD: *4 1/4" Hollow Stem Augers*

STATIC H2O ELEV.:

SAMPLING METHOD: *2 foot x 2 inch Split barrel Sampler*

TOTAL DEPTH: *14.0 Feet*

DRILLING COMPANY: *Stearns Drilling*

LOGGED BY: *P. Turnell*

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
			0	50				
1.0 to 3.0	4	<1			SP	CL	Asphalt Sand, trace silt, damp, yellowish brown Clay, trace silt, damp, mottled gray and brown	<p>2" PVC Riser</p> <p>2" PVC 0.010 Slotted Screen</p> <p>Bentonite Chips</p> <p>Filter Sand</p> <p>Concrete</p>
5.0 to 7.0	1	<1						
9.0 to 11.0	3						as above, change to saturated at 10.5 ft	
14.0							END OF BORING At 14.0 Feet	

Haley & Aldrich of Michigan  
Plymouth, Michigan

## Log of Monitoring Well MW4615

PROJECT: *Delphi Energy & Chassis Systems*

LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

PROJECT NO.: *40065-001*

SURFACE ELEVATION:

DATE START/FINISH: *4/6/00*

INITIAL H2O LEVEL: *21.0*

DRILLING METHOD: *4 1/4" Hollow Stem Augers*

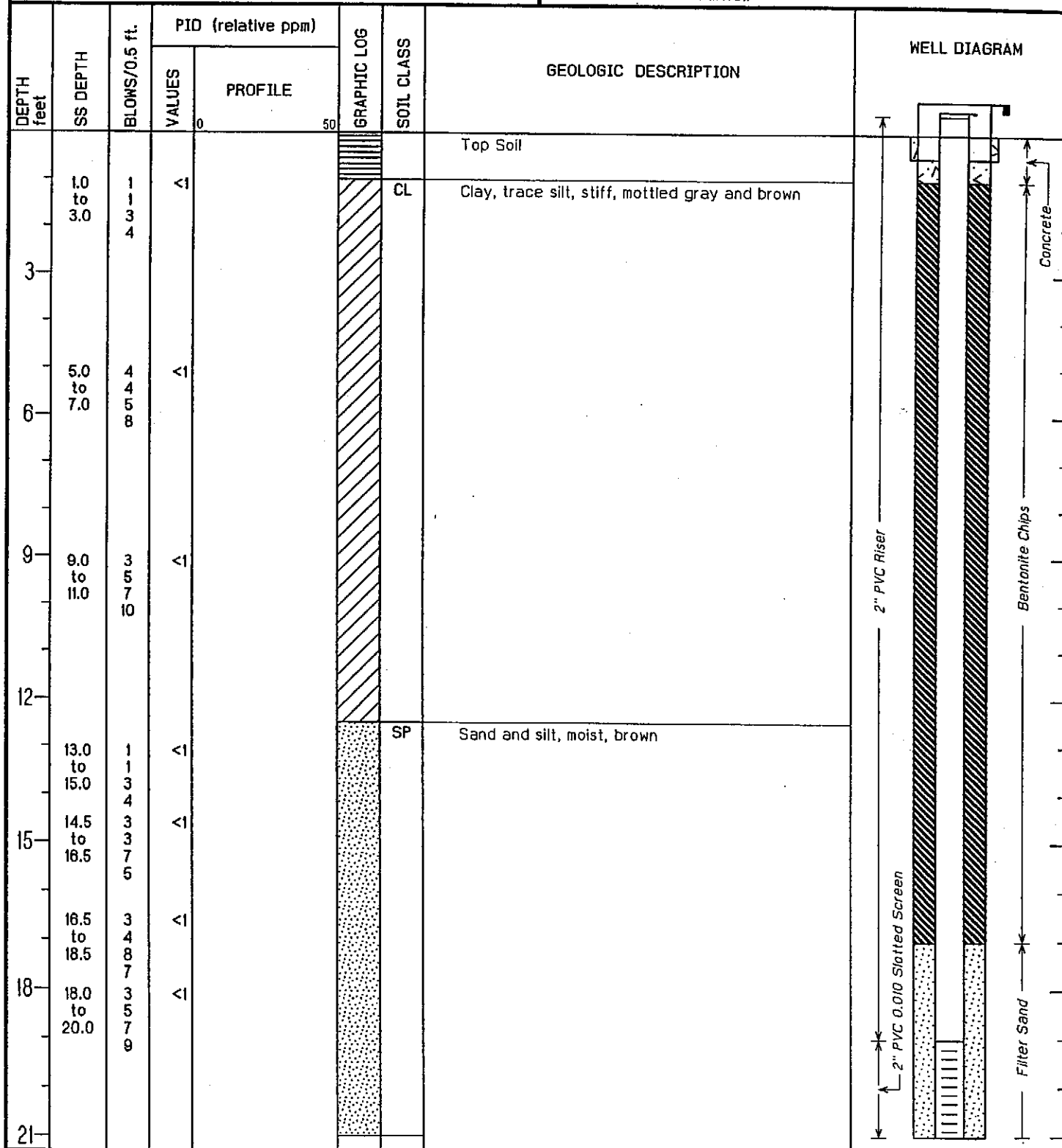
STATIC H2O ELEV.:

SAMPLING METHOD: *2 foot x 2 inch Split barrel Sampler*

TOTAL DEPTH: *24.0 Feet*

DRILLING COMPANY: *Stearns Drilling*

LOGGED BY: *P. Turnell*

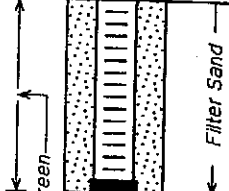


Haley & Aldrich of Michigan  
Plymouth, Michigan

# Log of Monitoring Well MW4615

PROJECT: *Delphi Energy & Chassis Systems*

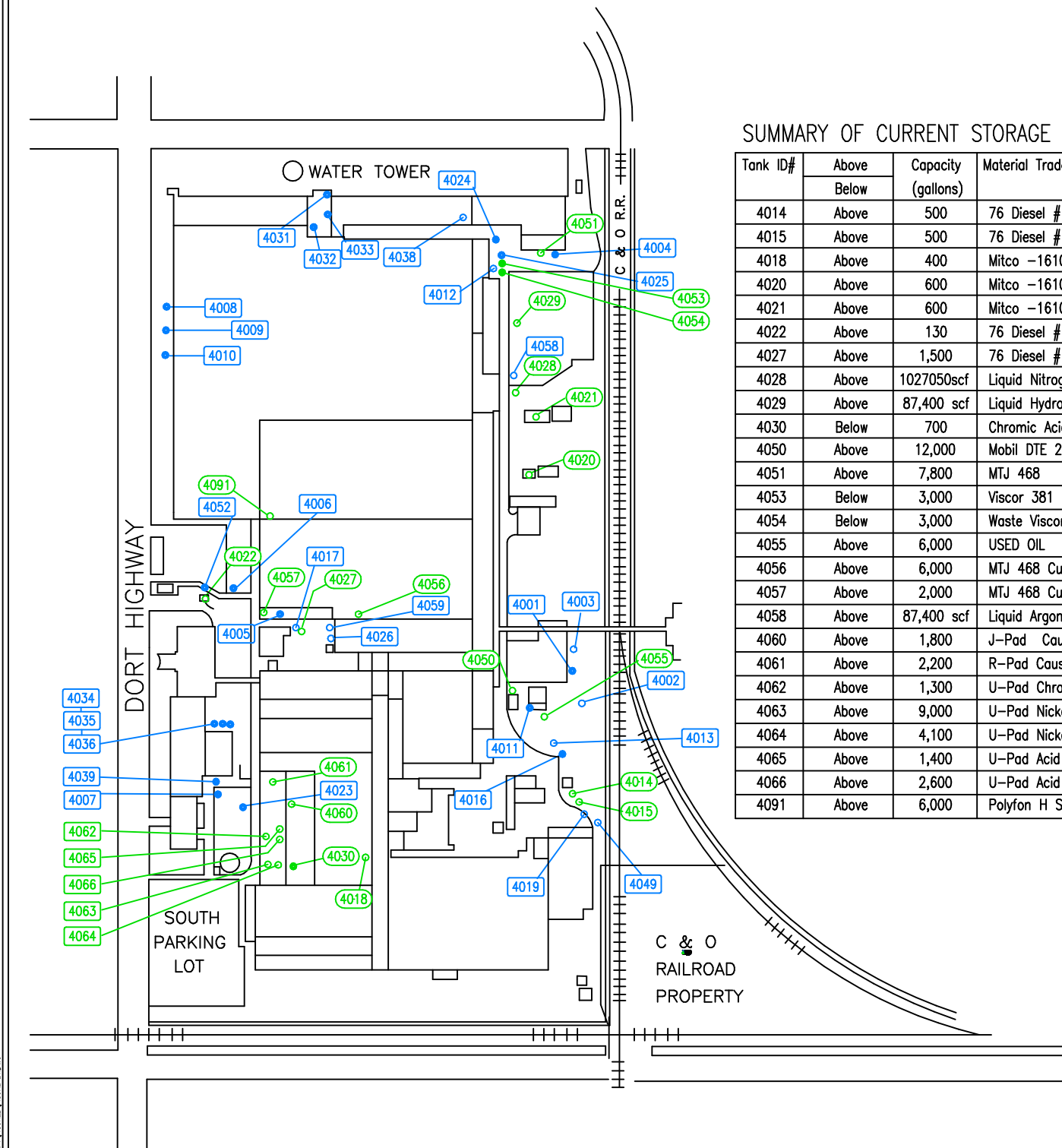
LOCATION: *1300 North Dort Highway, Plant 400, Flint Mi*

DEPTH feet	SS DEPTH	BLOWS/0.5 ft.	PID (relative ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
	21.0 to 23.0	2 1 1 4				SP	as above, change to saturated at 21 ft  as above, change to with fines, gray	 <p>2" PVC 0.010 Slotted Screen</p> <p>Filter Sand</p>
24							END OF BORING At 24.0 Feet	
27								
30								
33								
36								
39								
42								
45								

## **APPENDIX B**

### **Current and Former UST and AST Locations**

FILE NO:49017-001 & \49017\01\DOCS\FINAL DRAFT\FIGURES\FIGURE B1.DWG



SUMMARY OF CURRENT STORAGE TANKS

Tank ID#	Above	Capacity (gallons)	Material Tradename	HMC#	Date removed from...	
	Below				service	property
4014	Above	500	76 Diesel #1 LS	96-0176		
4015	Above	500	76 Diesel #1 LS	96-0176		
4018	Above	400	Mitco -1610L	97-0357		
4020	Above	600	Mitco -1610L	97-0357		
4021	Above	600	Mitco -1610L	97-0357		
4022	Above	130	76 Diesel #1 LS	96-0176		
4027	Above	1,500	76 Diesel #1 LS	96-0176		
4028	Above	1027050scf	Liquid Nitrogen (Cryogenic Liq)	95-0137		
4029	Above	87,400 scf	Liquid Hydrogen (Cryogenic Liq)	95-0136		
4030	Below	700	Chromic Acid	na		
4050	Above	12,000	Mobil DTE 25	92-0123		
4051	Above	7,800	MTJ 468	91-0283		
4053	Below	3,000	Viscor 381	97-0022		
4054	Below	3,000	Waste Viscor 381	97-0022	9/97	
4055	Above	6,000	USED OIL	na		
4056	Above	6,000	MTJ 468 Cutting Oil	91-0283		
4057	Above	2,000	MTJ 468 Cutting Oil	91-0283		
4058	Above	87,400 scf	Liquid Argon (Cryogenic Liquid)	95-0135	1999	2000
4060	Above	1,800	J-Pad Caustic Zinc Storage	na		
4061	Above	2,200	R-Pad Caustic Zinc Storage R-12	na		
4062	Above	1,300	U-Pad Chrome Plate Storage U-33	na	1997	
4063	Above	9,000	U-Pad Nickel Storage U-16	na	1997	
4064	Above	4,100	U-Pad Nickel Storage U-14	na	1997	
4065	Above	1,400	U-Pad Acid Chrome Storage U-7	na	1997	
4066	Above	2,600	U-Pad Acid Copper Storage U-6	na	1997	
4091	Above	6,000	Polyfon H Solution	96-0340		

SUMMARY OF INACTIVE OR REMOVED STORAGE TANKS

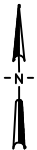
Tank ID#	Above	Capacity (gallons)	Material Tradename	HMC#	Date removed from...	
	Below				service	property
4001x	Below	12,000	HW-31	na	Nov-90	Jun-91
4002x	Above	30,000	Propane	92-0850	1996	1996
4003x	Above(r14)	10,000	Muriatic Acid	na	1987	1987
4004x	Below	15,000	Clear Tex	na	Aug-90	Sep-90
4005x	Below	6,000	Clear Tex	na	Dec-90	
4006x	Below(r1)	2,000	Diesel Oil	na	Aug-86	Sep-86
4007x	Below	4,000	Gasoline	na	Jan-91	Feb-91
4008x	Below	6,000	Zinc. Solution	na	Aug-88	Jun-89
4009x	Below(r2)	6,000	Zinc Solution	na	Aug-86	Sep-86
4010x	Below	6,000	Zinc Solution	na	Aug-88	Jul-89
4011x	Below(r3)	5,000	Lacquer Thinner	na	Apr-86	Oct-89
4012x	Above	40,000	Ammonia	na	Aug-90	Jun-91
4013x	Above(r13)	1,000	Used Oil	na	1984	1984
4016x	Below	10,000	Used Oil	na	Dec-92	Dec-92
4017x	Above	250	76 Diesel #1 LS	94-0180		
4019x	Above	1,000	Dirty 111-Trichloroethane	na	1989	1989
4023x	Below(r4)	10,000	Oleum	na	1960's	1960's
4024x	Below	3,000	Stoddard Solvent	na	Jul-92	Jul-92
4025x	Below	3,000	Waste Stoddard Solvent	na	Jul-92	Jul-92
4026x	Above		Liquid Nitrogen	90-0459	1993?	
4031x	Above	1,625	Freon	na		1992
4032x	Below	3,000	Clear Tex		Unknown	Filled
4033x	Below (r-5)	10,000		na	1980	
4034x	Below (pit)	2,000	Gasoline	na	1963	Jul-89
4035x	Below	2,000	Gasoline	na	1963	Jul-89
4036x	Below	2,000	Gasoline	na	1963	Jul-89
4038x	Above (r-12)	1,500		na	1982	1982
4039x	Below (r-17)		Gasoline	na	1978	
4049x	Above	1,000	Dirty 111 Trichloroethane	na	1989	
4052x	Below	550	Diesel Oil	na		Dec-89
4059x	Above	1,000	Anhydrous Ammonia	90-0446	1997	10/7/97

LEGEND:

- 0000 TANK ACTIVE
- 0000 TANK INACTIVE OR REMOVED
  - ABOVEGROUND STORAGE TANK
  - UNDERGROUND STORAGE TANK

NOTES:

- LOCATIONS OF TANKS ARE APPROXIMATE.
- PLAN AND TANK CONTENTS BASED ON FIGURE PROVIDED BY DELPHI.



DELPHI ENERGY & CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

CURRENT AND FORMER UST AND AST  
LOCATIONS

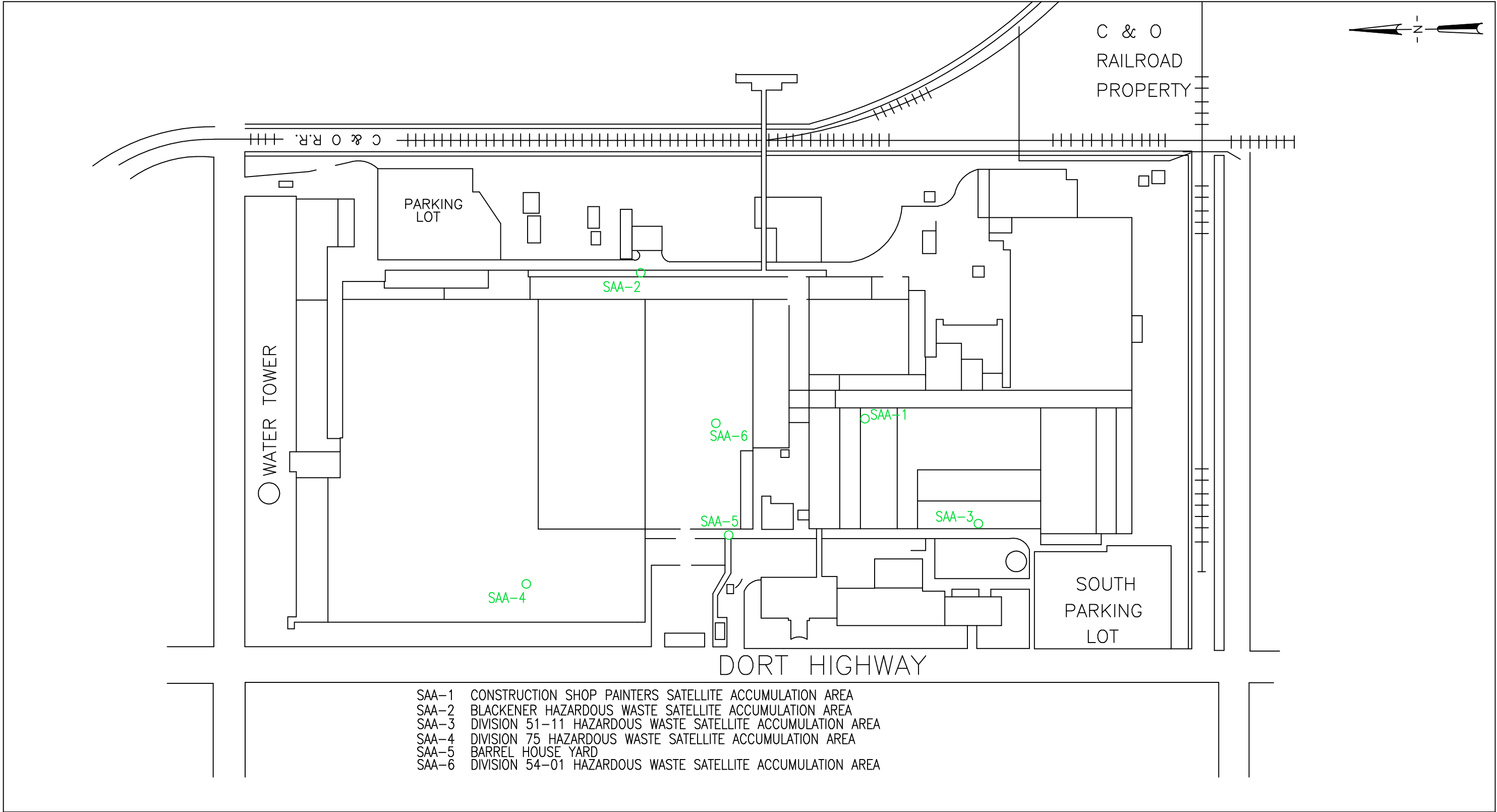
SCALE: NONE

## **APPENDIX C**

### **Satellite Accumulation Area Locations**



FILE NO: c:\49017\001\DOCC\FINAL DRAFT\FIGURE C1.DWG



LEGEND:

000 SATELLITE ACCUMULATION AREAS

- NOTES:
1. PLAN BASED ON DELPHI DRAWING
  2. LOCATIONS ARE APPROXIMATE



DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

SATELLITE ACCUMULATION AREA  
LOCATIONS

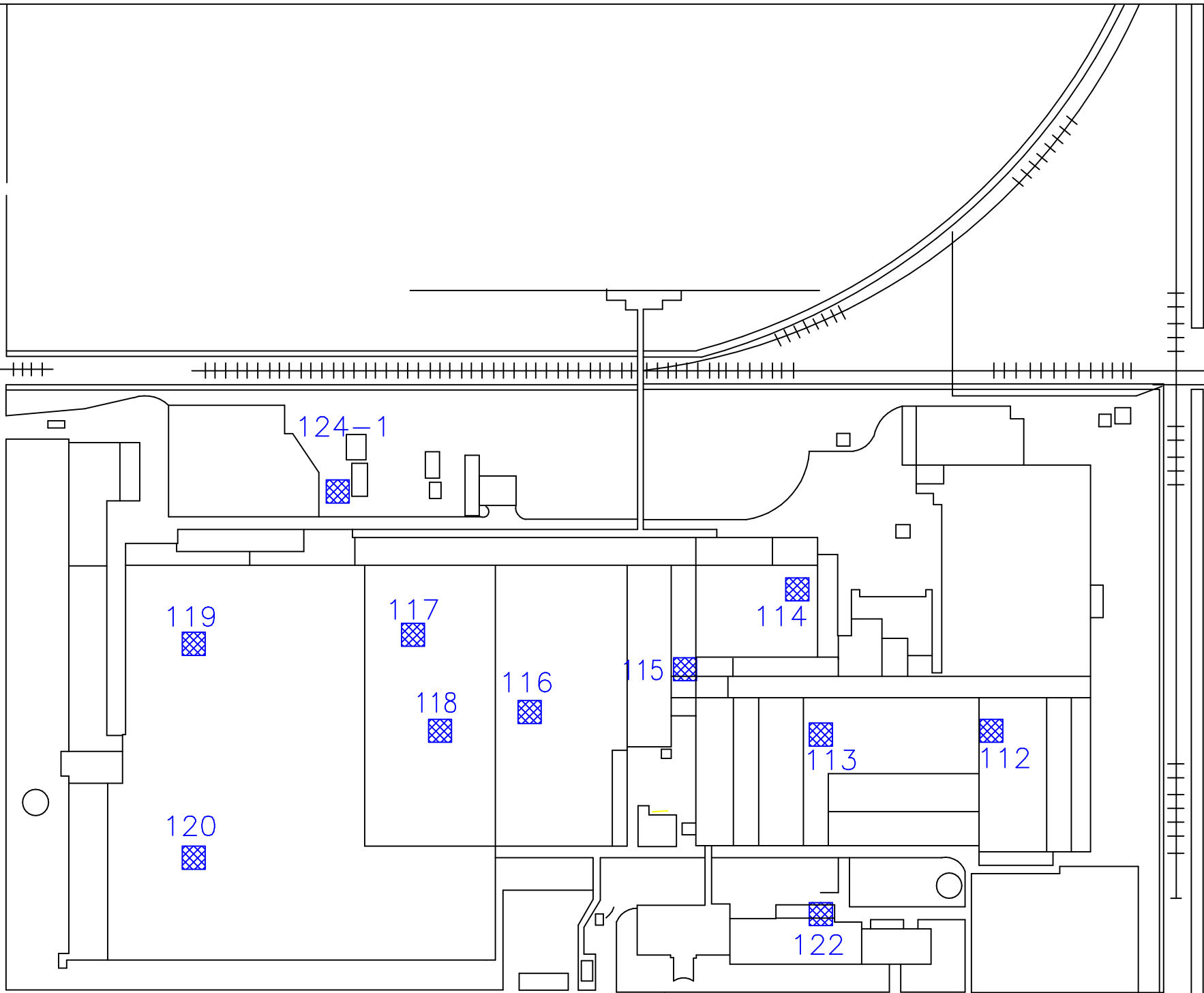
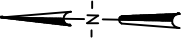
SCALE: None

AUGUST 2002

## **APPENDIX D**

### **PCB Transformer Locations**

FILE NO:G:\49017\001\DOCC\FINAL DRAFT\FIGURE D1.DWG



SUMMARY OF PCB-CONTAINING TRANSFORMERS

SUB NO.	PCB NO.	BLDG. NO.	LOCATION	CONTAINMENT	GAL.	INST. YR.
112-1	1554	4087	INDOOR	CONTAINED	306	1968
112-2	1553	4087	INDOOR	CONTAINED	300	1968
113-1	2616	4082	INDOOR	CONTAINED	309	1968
113-2	2617	4082	INDOOR	CONTAINED	309	1968
113-3	2618	4082	INDOOR	CONTAINED	185	1968
113-4	2619	4082	INDOOR	CONTAINED	220	1968
114-1	2612	4046	INDOOR	CONTAINED	309	1968
114-2	2613	4046	INDOOR	CONTAINED	309	1968
115-1	1542	4168*	INDOOR	CONTAINED	430	1968
115-2	1543	4168*	INDOOR	CONTAINED	430	1968
115-3	1544	4168*	INDOOR	CONTAINED	232	1974
116	1568	4081	INDOOR	CONTAINED	330	1970
117	1621	4094	INDOOR	CONTAINED	300	1968
118-1	2671	4094	INDOOR	CONTAINED	480	1966
118-2	2535	4094	INDOOR	CONTAINED	480	1966
119-3	1569	4100	INDOOR	CONTAINED	315	1971
120-2	1570	4100	INDOOR	CONTAINED	419	1965
120-3	1571	4100	INDOOR	CONTAINED	250	1965
122-1	1545	4070	INDOOR	CONTAINED	430	1966
122-2	1546	4070	INDOOR	CONTAINED	340	1966
124-1	1623	4177	OUTDOOR	CONTAINED	312	1974

LEGEND:  
120  
SUBSTATION WITH PCB CONTAINING TRANSFORMERS

NOTES:  
1. PLAN BASED ON DELPHI DRAWING  
2. TWENTY-TWO (22) PCB CONTAINING TRANSFORMERS WERE IDENTIFIED LOCATED WITHIN THE ELEVEN (11) SUBSTATIONS SHOWN



DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

PCB TRANSFORMER LOCATIONS

SCALE: None

AUGUST 2002

FIGURE D1

## **APPENDIX E**

### **AOI 1 - Previous Sampling Results for the Cyanide Lift Station**

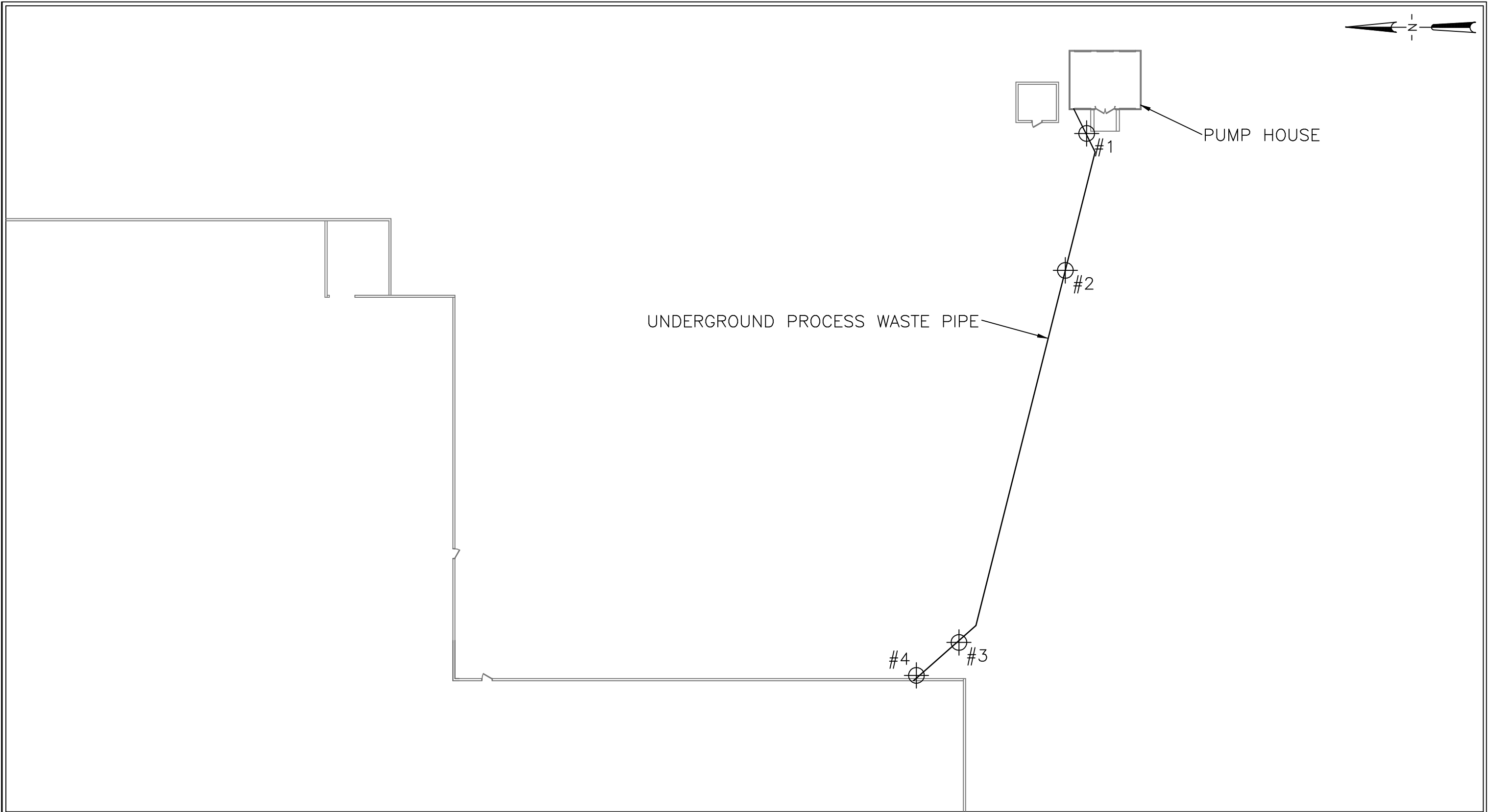
**TABLE E1**  
**AOI 1 - CYANIDE LIFT STATION**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: CYANIDE**

Sample Identification	Sample Date	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)	
		Cyanide	Amenable Cyanide
#1A Cyanide Lift Station	9/20/00	<b>27,800</b>	<b>27,800</b>
#2 Cyanide Lift Station	9/20/00	< 300	< 300
#3 Cyanide Lift Station	9/20/00	300	300
#4 Cyanide Lift Station	9/20/00	< 300	< 300
#1B Cyanide Lift Station	9/29/00	< 500	< 500
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>			
<b>Soil: Residential and Commercial I</b>			
Drinking Water Protection Criteria		4,000	4,000
Groundwater/Surface Water Interface Protection Criteria		400	400
Soil Protection Criteria for Surface Water Drinking Water Value		Not applicable	not applicable
Groundwater Contact Protection Criteria		250,000	250,000
Soil Volatilization to Indoor Air Inhalation Criteria		NLV	NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		NLV	NLV
Finite VSIC for 5 Meter Source Thickness		NLV	NLV
Finite VSIC for 2 Meter Source Thickness		NLV	NLV
Particulate Soil Inhalation Criteria		250,000	250,000
Direct Contact Criteria		250,000	250,000
<b>Soil: Industrial and Commercial II, III, and IV</b>			
Industrial and Commercial Drinking Water Criteria		4,000	4,000
Soil Volatilization to Indoor Air Inhalation Criteria		NLV	NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		NLV	NLV
Finite VSIC for 5 Meter Source Thickness		NLV	NLV
Finite VSIC for 2 Meter Source Thickness		NLV	NLV
Particulate Soil Inhalation Criteria		250,000	250,000
Direct Contact Criteria: Industrial and Commercial II		250,000	250,000
Direct Contact Criteria: Commercial III		250,000	250,000
Direct Contact Criteria: Commercial IV		250,000	250,000

**Notes and Abbreviations:**

1. See Figure E1 for sample locations
2. ND = Not Detected
3. NLV = Not Likely to Volatilize
4. **Bold and Shaded:** Indicates result is greater than Michigan DEQ Generic Criteria.

FILE: N:\G:\49017\001\DOCC\FINAL DRAFT\FIGURE E1.DWG



LEGEND:  
#4 SOIL SAMPLING LOCATION

NOTES:  
1. BASE PLAN PROVIDED BY DELPHI CORPORATION  
2. SAMPLING LOCATIONS ARE APPROXIMATE

  	DELPHI ENERGY AND CHASSIS SYSTEMS PLANT 400 - 1300 NORTH DORT HIGHWAY FLINT, MICHIGAN
	AOI 1 - CYANIDE PUMP HOUSE
	SCALE: 1 INCH = 30 FEET
AUGUST 2002	

FIGURE E1

## **APPENDIX F**

### **AOI 8 - Previous Sampling Results for the Hard Chrome Plater**

**TABLE F1**  
**AOI 8 - HARD CHROME PLATER**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: CHROMIUM**

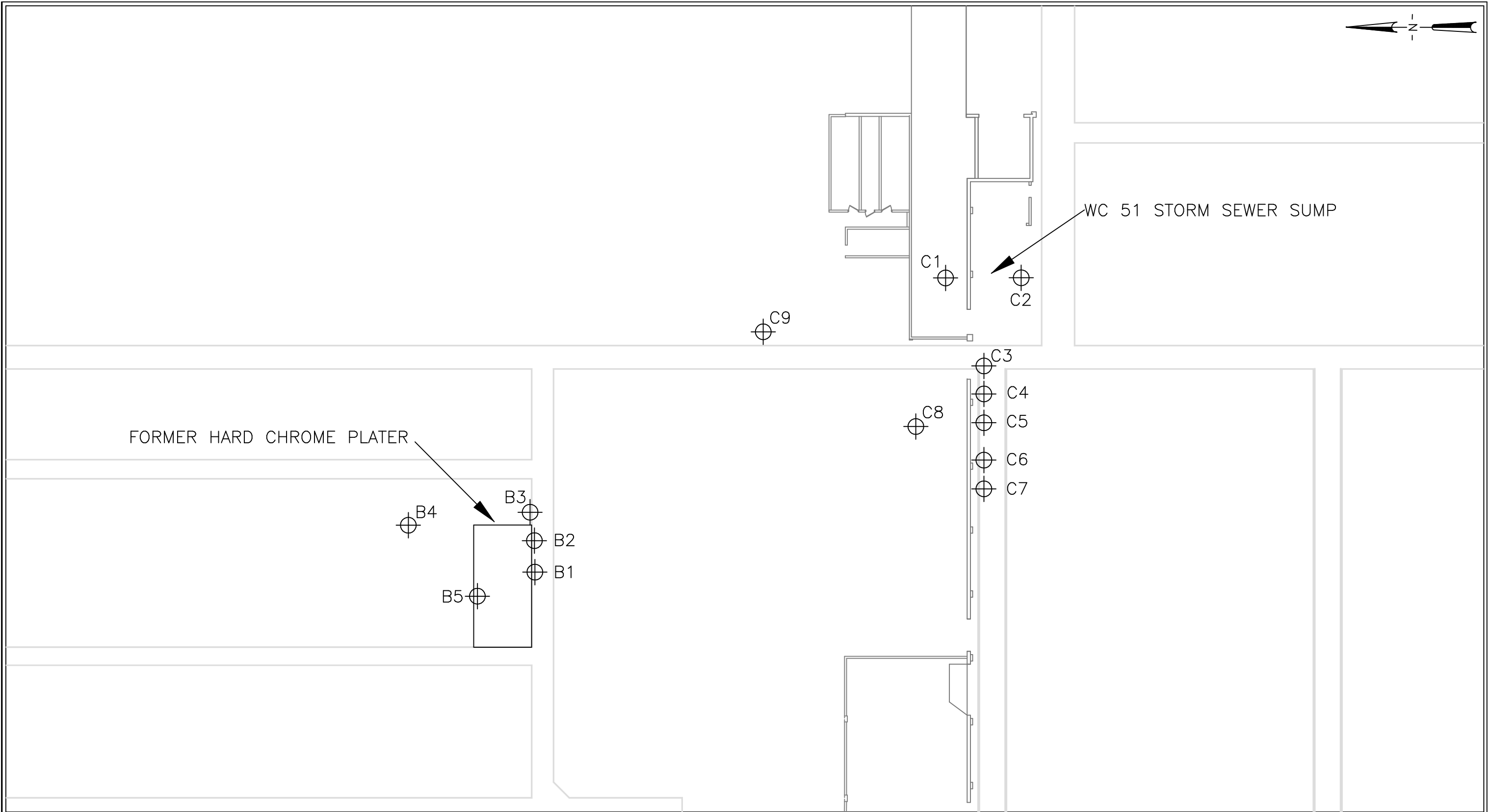
Sample Identification	Sample Date	Sample Depth	Hexavalent Chromium
B1	1992	7' - 8'	Non-detect
B2	1992	7' - 8'	Non-detect
B3	1992	2'	Non-detect
B4	1992	1' - 3'	Non-detect
B5	1992	7' - 8'	Non-detect
C1	1992	1' - 4'4"	Detected
C2	1992	1' - 7'	Detected
C3	1992	2'	Detected
C4	1992	3'	Detected
C5	1992	1'	Detected
C6	1992	2'8"	Detected
C7	1992	2'	Non-detect
C8	1992	3'	Detected
C9	1992	2'7"	Non-detect
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000) (µg/kg)</b>			
<b>Soil: Residential and Commercial I</b>			
Drinking Water Protection Criteria			30,000
Groundwater/Surface Water Interface Protection Criteria			3,300
Soil Protection Criteria for Surface Water Drinking Water Value			240
Groundwater Contact Protection Criteria			3.E+08
Soil Volatilization to Indoor Air Inhalation Criteria			NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			NLV
Finite VSIC for 5 Meter Source Thickness			NLV
Finite VSIC for 2 Meter Source Thickness			NLV
Particulate Soil Inhalation Criteria			2.6E+05
Direct Contact Criteria			2.0E+06
<b>Soil: Industrial and Commercial II, III, and IV</b>			
Industrial and Commercial Drinking Water Criteria			30,000
Soil Volatilization to Indoor Air Inhalation Criteria			NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			NLV
Finite VSIC for 5 Meter Source Thickness			NLV
Finite VSIC for 2 Meter Source Thickness			NLV
Particulate Soil Inhalation Criteria			3.3E+05
Direct Contact Criteria: Industrial and Commercial II			2.2E+07
Direct Contact Criteria: Commercial III			3.0E+07
Direct Contact Criteria: Commercial IV			7.1E+07

**Notes and Abbreviations:**

1. See Figure F1 for sampling locations.



FILE NO:G:\49017\001\DOCC\FINAL DRAFT\FIGURE F1.DWG



**LEGEND:**  
B3  
⊕ SOIL SAMPLING LOCATION

**NOTES:**  
1. BASE PLAN PROVIDED BY DELPHI CORPORATION  
2. SAMPLING LOCATIONS ARE APPROXIMATE



DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

AOI 8 - HARD CHROME PLATER

SCALE: 1 INCH = 30 FEET

AUGUST 2002

## **APPENDIX G**

### **AOI 11 - Previous Sampling Results for the Executive Garage Area**



JOHN ENGLER, Governor

**DEPARTMENT OF ENVIRONMENTAL QUALITY**

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

RUSSELL J. HARDING, Director

**REPLY TO:**

SHIAWASSEE DISTRICT OFFICE  
10650 S BENNETT DR  
MORRICE MI 48857-9792

September 5, 1996

Mr. William Schroeck  
GM Corporation-Delphi Automotive Systems  
1300 North Dort Highway  
Flint, Michigan 48556

Dear Mr. Schroeck:

**SUBJECT:** Closure Report Date: July 31, 1996  
Confirmed Release Date: January 29, 1991  
Location of Tank(s): AC Rochester, Delphi Energy & Engine Management  
Systems, 1300 North Dort Highway, Flint, Genesee County, Michigan  
Facility ID #: 0-017248 MERA Site ID #: 250537 MUSTFA Claim #: n/a

In accordance with Section 21312a(2) of Part 213 Leaking Underground Storage Tanks (LUST) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (Act 451) the Underground Storage Tank Division (USTD) of the Department of Environmental Quality (DEQ) acknowledges receipt of your closure report. This closure report was submitted on your behalf for the above referenced site by 21st Century Resources, Incorporated, Qualified Underground Storage Tank Consultant (QC), in accordance with Section 21312a(1) of Part 213.

The closure report submitted by the QC concludes that corrective action at the site has resulted in RESTRICTED USE of the site based on a Tier I evaluation, utilizing institutional controls. A notice of corrective action has been recorded with the register of deeds for Genesee County as outlined in Section 21310a.(1) of Act 451. The notice states that an industrial use is the basis of the corrective action selected by the QC. Any future change in the land use may necessitate further evaluation of potential risks to the public health, safety, and welfare and to the environment. The USTD must be contacted regarding any proposed change in the land use.

Please note that when contaminated soil and/or groundwater as a result of a release of a regulated substance remains on site consistent with site closure requirements, the owner/operator shall not remove soil and/or groundwater, or allow soil and/or groundwater to be removed from the site to an off-site location without properly characterizing the soils and/or groundwater to determine that the soils and/or groundwater can be lawfully relocated without posing a threat to the public health safety, or welfare, or the environment. The determination shall consider whether the soil and/or groundwater is subject to regulations under Part 111 of Act 451.

September 5, 1996

Under Section 21315 (1) of Act 451, the USTD may audit the results of the investigation and corrective actions undertaken to confirm the results and conclusions indicated by the QC within six months of receipt of the closure report. If the audit confirms that corrective action has been conducted in compliance with Part 213 and that the cleanup criteria have been met, you will be provided with a letter describing the audit and its results. If the audit does not confirm that corrective action is complete, additional information and/or corrective action may be required as set forth in Section 21315(3) of Act 451.

Sincerely,



Pamela J. Howd  
Environmental Quality Analyst  
Underground Storage Tank Division  
517-625-4617

PJH/de

cc: Mr. Ghassan A. George, 21st Century Resources, Inc.  
Mr. Ben Hall, DEQ



## **RELEASE CLOSURE REPORT**

### **DELPHI ENERGY & ENGINE MANAGEMENT SYSTEMS**

Formerly: AC Rochester East  
Executive Garage UST No. 4007  
1300 N. Dort Highway  
Flint, Michigan 48556  
Genesee County

SFM ID# 0-004049

#### **For Submittal to:**

MDEQ - Shiawassee Office  
UST Division  
10650 Bennett Drive  
Morrice, Michigan 48857-9792

#### **Prepared For:**

**Mr. William Schroeck**

#### **Prepared by:**

**21<sup>ST</sup> CENTURY RESOURCES, INC.**  
18977 West Ten Mile Road  
Suite #100  
Southfield, Michigan 48075  
QUSTC# Z0184

Project No. 93-010

August 1, 1996

## CORRECTIVE ACTION NOTICE TO REGISTER OF DEEDS

Required under Section 2130a, Part 213 of 1994 PA 451, as amended

Instructions: Use this form for the corrective action notice to be filed with the register of deeds. This form is needed when the corrective action plan is based upon a commercial or industrial Tier 1 table.

The owner/operator identified below has prepared a site assessment or corrective action plan requiring land use controls. The site assessment or corrective action plan was developed as a result of a release from an underground storage tank(s) and was prepared pursuant to the provision in Section 21310a(1) of 1994 PA 451, as amended (Act 451). Regulated substances were discovered during the investigation and/or removal of underground storage tank(s) (USTs). This notice of corrective action is filed with the County Register of Deeds and covers the land commonly known as listed below and more fully described in Exhibit A, attached. (Attach a legal property description in exhibit A for the land where the institutional controls would apply and a map of the property).

(Common use name)  
Owner/Operator: DELPHI Energy & Engine Management Systems Flint-East Div. GMC

Release discovered during ☐ investigation or ☒ removal

Number of USTs: one Type of UST: gasoline

County where deed is registered: Genesee

Common description of land, township, city, county: DELPHI Energy & Engine Management Systems  
FLINT EAST COMPLEX 1300 N. 30th May, Flint, MI 48556 Genesee County

The land use that was the basis of corrective action at this site is as follows: Industrial  
Restrictions on utilization of groundwater resources:

Describe the land use restriction(s) commercial III or IV, or industrial that was/were the basis of the corrective action

If there is a proposed change in the land use at any time in the future, that change may necessitate further evaluation of potential risks to the public health, safety, and welfare and to the environment. The Department of Environmental Quality shall be contacted regarding any proposed change in the land use, and any change may necessitate further evaluation of potential risks to the public health, safety, and welfare and to the environment.

This notice is being filed by the property owner or with the expressed written permission of the property owner.

The filing of this notice is consistent with the provisions of Section 21310a(1) of Act 451.

☐ The corrective action plan cited above is maintained on file at \_\_\_\_\_

☒ A corrective action plan is not needed as the site meets a Tier 1 commercial/industrial lookup table.



33280

Ctsy-103



MASTER LIBER 3310 PAGE 433

I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

Mr. Lull  
Owner or Operator's Signature  
Director  
Estate  
True Owner or Operator's Name

April 18, 1996  
Date

IN WITNESS WHEREOF, the said Owner of the above described property has caused the Institutional Control to be entered on the 18 day of April, 1996.

M. Lull  
Witness

Steve Nadolski  
Witness

Steve Nadolski  
True Witness' Name

Steve Nadolski  
True Witness' Name

Subscribed and sworn to me before this 18 day of April, 1996 Mr. Lull  
Notary Public

Wayne County, Michigan  
Within County

My Commission Expires 12/98

Drafted by General Motors Legal Staff  
Custody Name

Sook F. Shin, Attorney at Law

Drafters name

3044 West Grand Boulevard

Custody Address

(MC 482-112-143)

Detroit, Michigan 48202

↑  
1500

EXECUTION RECOMMENDED  
WORLDWIDE REAL ESTATE  
BY Mr. Lull

EXHIBIT "A"

MASTER  
LIBER 3310 PAGE 435

03-18-96  
96087GMC  
Delphi West (Deed Restriction)

DESCRIPTION OF PROPERTY (DEED RESTRICTION)

A part of the NW1/4 of Section 13, T7N, R6E, City of Flint, Genesee County, Michigan, described as: Commencing at the NW corner of Lot 65 of "Wilcox's Replat of Block A of McFarlan & Company's River Addition to the City of Flint" as recorded in Liber 1 of Plats, Page 1, Genesee County Records; thence N58°15'00"E 726.00 feet along the south right of way of Bluff Street (60 feet wide) to the intersection with the west right of way of Mathewson Street (60 feet wide) extended; thence S32°45'00"W 148.50 feet; thence S56°59'06"E 280.57 feet for a POINT OF BEGINNING; thence continuing S56°59'06"E 178.25 feet; thence S32°45'00"W 126.47 feet; thence S73°02'38"W 153.28 feet; thence N57°15'00"W 79.12 feet; thence N32°45'00"E 244.21 feet to the POINT OF BEGINNING. Containing 37,661 square feet or 0.8646 acres, more or less.



TABLE G1  
AOI #11 - EXECUTIVE GARAGE  
LABORATORY ANALYSIS RESULTS  
SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS

Sample Identification	Sample Description	Sample Date	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)				
			Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
1	Trench Soil Sample		<10	<10	<10	13	NA
2	Trench Soil Sample		<10	<10	<10	40	NA
3	Trench Soil Sample		220	1,200	2,800	15,000	NA
4	Trench Soil Sample		<10	35	31	78	NA
5	Trench Soil Sample		<10	<10	<10	<10	NA
6	Trench Soil Sample		<10	<10	<10	<10	NA
7	Trench Soil Sample		1,000	3,800	1,300	8,600	NA
8	Trench Soil Sample		<100	1,000	1,800	7,000	NA
North-1	Tank 4034-4036 Excavation	7/14/89	<2.0	<2.0	<2.0	<2.0	NA
West-1	Tank 4034-4036 Excavation	7/14/89	<2.0	6	<2.0	30	NA
East-1	Tank 4034-4036 Excavation	7/14/89	20	9	50	25	NA
South-1	Tank 4034-4036 Excavation	7/14/89	<2.0	<2.0	<2.0	<2.0	NA
North	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
South	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
East-1	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
East-2	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
West-1	Tank 4007 Pipe Excavation	7/9/92	2,800	1,700	800	5,800	100
West-2	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
Floor @13	Tank 4007 Pipe Excavation	7/9/92	ND	ND	ND	ND	ND
SB-1	4'	8/25/94	<10	<10	<10	<30	NA
SB-1	6'	8/25/94	<10	<10	<10	<30	NA
SB-2	1'	8/25/94	<10	<10	<10	<35	NA
SB-2	3'	8/25/94	<10	<10	<10	<30	NA
SB-2	4'	8/25/94	<10	<10	<10	<30	NA
SB-3	4'	8/25/94	<10	<10	<10	<30	NA
AW-8	7' - 9'	7/2/93	<120	1,600	1,800	11,000	NA
AW-8	8.5' - 10.5'	7/2/93	710	16,000	8,800	55,000	NA
AW-9	8' - 10'	7/2/93	<10	180	15	120	NA
AW-10	8' - 10'	7/2/93	6,800	35,000	9,100	54,000	NA
Soil Boring #1	6	10/24/91	<10	<10	<10	<10	NA
Soil Boring #1	11	10/24/91	<10	<10	<10	<10	NA
Soil Boring #2	6	10/24/91	84	110	1,200	1,200	NA
Soil Boring #2	13	10/24/91	590	4,100	6,500	6,500	NA
Soil Boring #3	6	10/24/91	<50	490	440	440	NA
Soil Boring #3	11	10/24/91	<10	<10	<10	<10	NA
Soil Boring #5	6	10/24/91	<10	<10	<10	<10	NA
Soil Boring #5	11	10/24/91	<10	<10	<10	<10	NA
Soil Boring #5	13	10/24/91	<10	<10	<10	<10	NA
Soil Boring #5	17	10/24/91	<10	<10	<10	<10	NA
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)							
Soil: Residential and Commercial I							
Drinking Water Protection Criteria			100	16,000	1,500	5,600	800
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700	15,000
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable	2,400
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000	5,900,000
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000	5,900,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2,800,000	9,500,000	46,000,000	25,000,000
Finite VSIC for 5 Meter Source Thickness			34,000	5,100,000	14,000,000	61,000,000	39,000,000
Finite VSIC for 2 Meter Source Thickness			79,000	12,000,000	30,000,000	130,000,000	87,000,000
Particulate Soil Inhalation Criteria			380,000,000	27,000,000,000	67,000,000,000	290,000,000,000	200,000,000,000
Direct Contact Criteria			180,000	250,000	140,000	150,000	1,800,000
Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)							
Industrial and Commercial Drinking Water Criteria			100	16,000	1,500	5,600	800
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000	5,900,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3,300,000	11,000,000	54,000,000	30,000,000
Finite VSIC for 5 Meter Source Thickness			99,000	36,000,000	14,000,000	65,000,000	41,000,000
Finite VSIC for 2 Meter Source Thickness			230,000	36,000,000	30,000,000	130,000,000	89,000,000
Particulate Soil Inhalation Criteria			470,000,000	12,000,000,000	29,000,000,000	130,000,000,000	88,000,000,000
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000	5,900,000
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000	5,900,000
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000	5,900,000

Notes and Abbreviations:

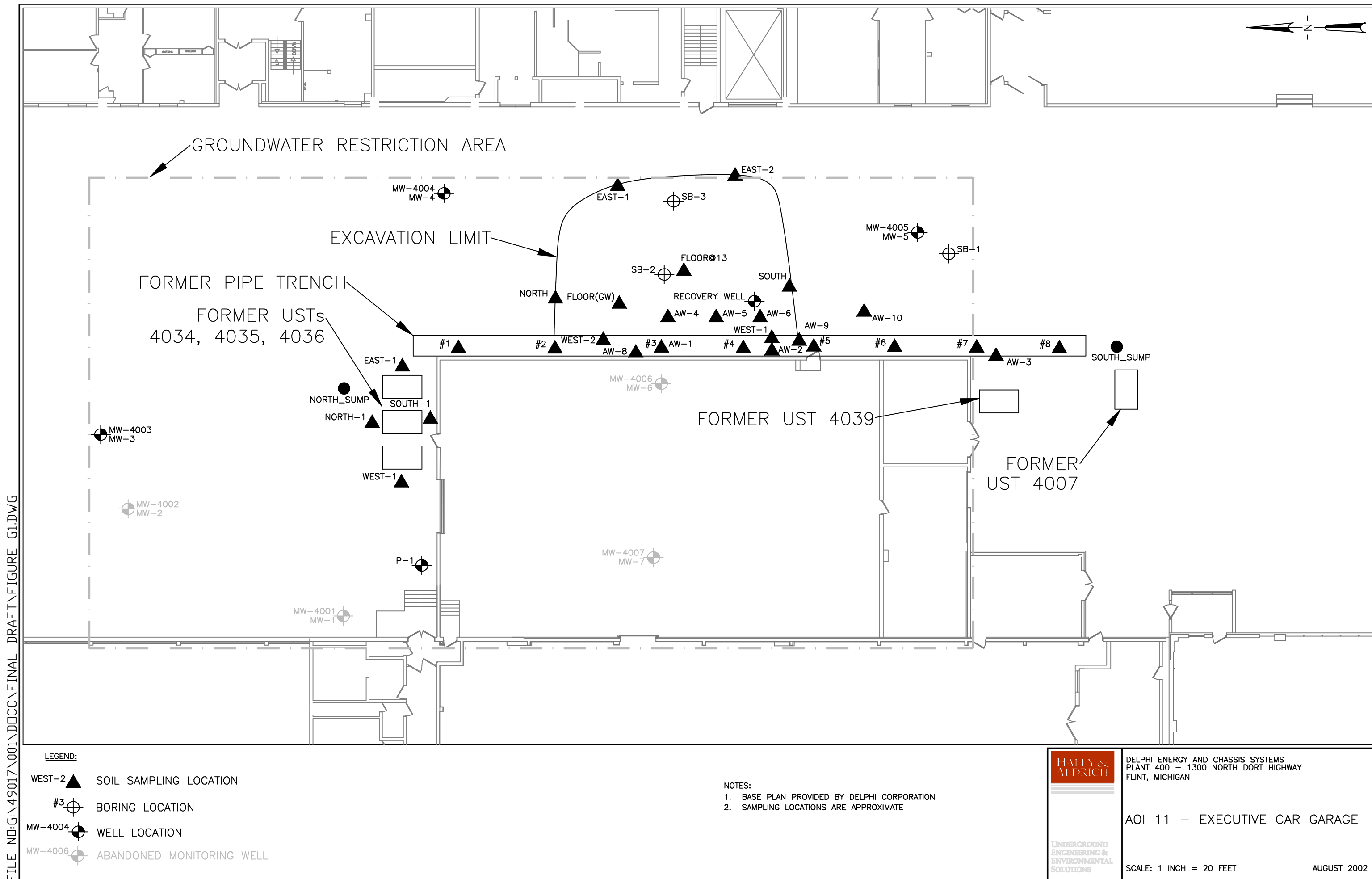
- 1. See Figure G1 for sample locations.
- 2. NA: Not analyzed. ND: Not detected.
- 3. Bold: Indicates result above Michigan DEQ Generic Cleanup Criteria

**TABLE G2**  
**AOI #11 - EXECUTIVE GARAGE**  
**LABORATORY ANALYSIS RESULTS**  
**GROUNDWATER: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Date	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level			
		Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	1/16/1990	<0.4	<0.2	<0.2	<0.2
MW-1	12/5/1991	<1.0	<1.0	<1.0	<1.0
MW-2	1/16/1990	<0.4	<0.2	<0.2	<0.2
MW-2	12/5/1991	<1.0	<1.0	<1.0	<1.0
MW-3	1/16/1990	<0.4	<0.2	<0.2	<0.2
MW-3	12/5/1991	<1.0	<1.0	<1.0	<1.0
MW-3	4/15/1992	<1.0	<1.0	<1.0	<1.0
MW-4	1/16/1990	<0.4	<0.2	<0.2	<0.2
MW-4	12/5/1991	<1.0	<1.0	<1.0	<1.0
MW-4	2/4/1992	<1.0	<1.0	<1.0	<1.0
MW-5	12/5/1991	<1.0	<1.0	<1.0	<1.0
MW-5	2/4/1992	<1.0	<1.0	<1.0	<1.0
MW-4006	3/8/1995	<b>42</b>	<1.0	<1.0	<b>36</b>
MW-4006 Duplicate	3/8/1995	<b>43</b>	<1.0	<1.0	30
MW-4006	5/10/1995	<b>22</b>	<1.0	7	12
Floor	7/9/92	<b>530</b>	<b>120</b>	<b>120</b>	<b>710</b>
Effluent-4" Recovery Well (FD 4024)	08/16/93	<1.0	<1.0	<1.0	<3.0
Recovery Well (FD-4024)	09/15/93	<1.0	<1.0	<1.0	<3.0
Recovery Well (FD-4024)	10/31/94	<1.0	<1.0	<1.0	<3.0
Recovery Well (FD-4024)	03/24/95	<1.0	<1.0	<1.0	<3.0
North Sump	2/4/1992	<1.0	<1.0	<1.0	<1.0
South Sump	2/4/1992	<1.0	<1.0	<1.0	<1.0
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>					
<b>Groundwater: Residential and Industrial-Commercial</b>					
Residential & Commercial I Drinking Water Criteria		5	790	74	280
Industrial & Commercial II, III, IV, Drinking Water Criteria		5	790	74	280
Groundwater Surface Water Interface Criteria		200	140	18	35
Surface Water Drinking Water Value		12	not applicable	not applicable	not applicable
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria		5,600	530,000	170,000	190,000
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.		36,000	530,000	170,000	190,000
Groundwater Contact Criteria		11,000	530,000	170,000	190,000
Flammability and Explosivity Screening Level		34,000	31,000	22,000	35,000
Groundwater Acute Inhalation Screening Level		67,000	ID	170,000	190,000

**Notes and Abbreviations:**

1. See Figure G1 for sample locations.
2. ID: Inadequate data to develop criterion.
3. Bold and shaded: Indicates result above Michigan DEQ Generic Cleanup Criteria



## **APPENDIX H**

### **AOI 13 - Previous Sampling Results for the Gridley Area**

**TABLE H1**  
**AOI-13 GRIDLEY AREA**  
**TANK # 4005**  
**SUMMARY OF LABORATORY ANALYSIS RESULTS**  
**SOIL: METALS**

Sample Identification	Sample Depth (feet below ground level)	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
		Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc
8-1	1.0	6,900	74,000	<2,000	6,500	16,000	21,000	<100	16,000	<500	<1,000	81,000
8-2	3.0	5,900	30,000	<2,000	<5,000	19,000	18,000	<100	15,000	<500	<1,000	130,000
8-3	5.0	<5,000	21,000	<2,000	<5,000	8,300	8,700	<100	11,000	<500	<1,000	28,000
8-4A	6.5	<5,000	65,000	<2,000	7,000	8,800	13,000	<100	16,000	<500	<1,000	39,000
8-4B	7.0	<5,000	65,000	<2,000	<5,000	8,100	12,000	<100	13,000	<500	<1,000	24,000
8-5	10.0	<5,000	130,000	<2,000	8,100	13,000	17,000	<100	24,000	<500	<1,000	39,000
8-6	15.0	5,400	110,000	<2,000	5,300	12,000	18,000	<100	18,000	<500	<1,000	32,000
C9-1	1.0	5,700	44,000	<2,000	6,000	20,000	30,000	<100	17,000	<500	<1,000	110,000
C9-2	3.0	<5,000	32,000	<2,000	<5,000	11,000	14,000	<100	17,000	<500	<1,000	88,000
9-2	3.0	<5,000	29,000	<2,000	<5,000	16,000	13,000	<100	25,000	<500	<1,000	140,000
9-3	5.0	5,400	48,000	<2,000	7,800	21,000	15,000	<100	18,000	<500	<1,000	140,000
9-4A	6.5	<5,000	36,000	<2,000	6,200	12,000	11,000	<100	15,000	<500	<1,000	77,000
9-4B	7.0	<5,000	14,000	<2,000	<5,000	4,800	<5,000	<100	<10,000	<500	<1,000	13,000
9-5A	9.5	<5,000	19,000	<2,000	<5,000	10,000	10,000	<100	13,000	<500	<1,000	47,000
9-5B	10.5	<5,000	16,000	<2,000	<5,000	12,000	14,000	<100	20,000	<500	<1,000	35,000
9-6	15	6,100	34,000	<2,000	5,900	13,000	14,000	<100	24,000	<500	<1,000	38,000
10-1	1.0	6,400	30,000	<2,000	<5,000	19,000	21,000	<100	14,000	<500	<1,000	100,000
10-2A	2.5	<5,000	27,000	<2,000	<5,000	4,600	5,600	<100	<10,000	<500	<1,000	21,000
10-2B	3.0	<5,000	48,000	<2,000	7,900	10,000	8,200	<100	19,000	<500	<1,000	26,000
10-4	7.0	5,900	54,000	<2,000	6,900	12,000	13,000	<100	20,000	<500	<1,000	37,000
10-5A	10.0	<5,000	24,000	<2,000	<5,000	5,200	6,900	<100	<10,000	<500	<1,000	15,000
10-5B	10.5	<5,000	46,000	<2,000	<5,000	9,900	13,000	<100	14,000	<500	<1,000	29,000
10-6	15.0	5,200	22,000	<2,000	5,200	12,000	14,000	<100	20,000	<500	<1,000	40,000
11-1	1.0	6,000	30,000	<2,000	16,000	38,000	31,000	<100	19,000	<500	<1,000	280,000
11-2	3.0	5,000	41,000	<2,000	7,500	4,800	8,500	<100	12,000	<500	<1,000	72,000
11-3	5.0	8,800	72,000	<2,000	10,000	16,000	15,000	<100	19,000	<500	<1,000	150,000
11-4A	7.0	12,000	100,000	<2,000	9,000	15,000	9,600	<100	32,000	<500	<1,000	50,000
11-4B	7.5	<5,000	10,000	<2,000	<5,000	4,700	<5,000	<100	<10,000	<500	<1,000	25,000
11-5	10.0	5,900	39,000	<2,000	5,900	12,000	14	<100	21,000	<500	<1,000	37,000
11-6	15.0	7,200	44,000	<2,000	6,700	13,000	14	<100	24,000	<500	<1,000	36,000

ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)

**TABLE H1**  
**AOI-13 GRIDLEY AREA**  
**TANK # 4005**  
**SUMMARY OF LABORATORY ANALYSIS RESULTS**  
**SOIL: METALS**

Sample Identification	Sample Depth (feet below ground level)	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
		Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc
Soil: Residential and Commercial I												
Statewide Default Background Levels		5,800	75,000	1,200	18,000 total	32,000	21,000	130	20,000	410	1,000	47,000
Drinking Water Protection Criteria		23,000	1.3E+06	6,000	30,000	5.80E+06	700,000	1,700	100,000	4,000	4,500	2.4E+06
Groundwater Surface Water Interface Protection Criteria		70,000	{G}	{G}	3,300	{G}	{G}	100	{G}	400	500	{G}
Soil Protection Criteria for Surface Water Drinking Water Value		16,000	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria		2.0E+06	1.0E+09	2.3E+08	1.4E+08	1.0E+09	ID	47,000	1.0E+09	7.80E+07	2.0E+08	1.0E+09
Soil Volatilization to Indoor Air Inhalation Criteria		NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 5 Meter Source Thickness		NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 2 Meter Source Thickness		NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Particulate Soil Inhalation Criteria		720,000	3.3E+08	1.7E+06	260,000	1.3E+08	1.0E+08	ID	13,000,000	1.3E+08	6.7E+06	ID
Direct Contact Criteria		7,600	3.7E+07	550,000	2.5E+06	2.0E+07	400,000	160,000	40,000,000	2.6E+06	2.5E+06	1.7E+08
Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)												
Particulate Soil Inhalation Criteria		910,000	1.5E+08	2.2E+06	240,000	5.9E+07	4.4E+07	ID	1.6E+07	5.9E+07	2.9E+06	ID
Direct Contact Criteria: Industrial and Commercial II		61,000	2.5E+08	4.1E+06	1.7E+07	1.4E+08	900,000 draft	1.1E+06	2.7E+08	1.8E+07	1.7E+07	1.0E+09
Direct Contact Criteria: Commercial III		90,000	2.9E+08	4.2E+06	2.0E+07	1.6E+08	400,000	1.2E+06	3.1E+08	2.1E+07	1.9E+07	1.0E+09
Direct Contact Criteria: Commercial IV		74,000	2.7E+08	4.1E+06	1.8E+07	1.5E+08	400,000	1.2E+06	2.9E+08	1.9E+07	1.8E+07	1.0E+09
Site Specific Background Level (mean+3 standard deviations)		-	-	-	-	-	-	-	-	-	-	-

**Notes and Abbreviations:**

1. ID: Inadequate data to develop criterion
2. NLV: Chemical is not likely to volatilize under most conditions
3. {1} Using Chromium VI Criteria except surface water drinking water value (Cr III)
4. **Bold and shaded:** Indicates result above Michigan DEQ Generic Cleanup Criteria
5. {G} GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.

**TABLE H2**  
**AOI 13 GRIDLEY AREA**  
**TANK # 4005**  
**LABORATORY ANALYSIS RESULTS**  
**GROUNDWATER: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Date	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level					
		Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	PAHs
MW-1	11/8/1991	1.8	<1.0	<1.0	1.6	NA	<3
MW-1	2/4/1992	<1.0	<1.0	<1.0	<1.0	<50	NA
MW-2	11/8/1991	<1.0	7.5	<1.0	<1.0	NA	<3
MW-2	2/4/1992	<1.0	<1.0	<1.0	<1.0	<50	NA
MW-2	4/15/1992	<1.0	<1.0	<1.0	<1.0	NA	NA
MW-3	11/8/1991	<1.0	<1.0	<1.0	<1.0	NA	<3
MW-4	11/8/1991	<1.0	<1.0	<1.0	<1.0	NA	<3
MW-4	2/4/1992	<1.0	<1.0	<1.0	<1.0	<50	<3
MW-4	4/15/1992	<1.0	<1.0	<1.0	<1.0	NA	NA
MW-6	6/24/1993	<1.0	<1.0	<1.0	<1.0	NA	NA
MW-6	7/1/1993	<1.0	<1.0	<1.0	<1.0	NA	NA
MW-7	6/24/1993	<1.0	<1.0	<1.0	<1.0	NA	NA

**ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)**

**Groundwater: Residential and Industrial-Commercial**

Residential & Commercial I Drinking Water Criteria	5	790	74	280	40	various
Industrial & Commercial II, III, IV, Drinking Water Criteria	5	790	74	280	40	various
Groundwater Surface Water Interface Criteria	200	140	18	35	730	various
Surface Water Drinking Water Value	12	not applicable	not applicable	not applicable	not applicable	various
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria	5,600	530,000	170,000	190,000	47,000,000	various
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.	36,000	530,000	170,000	190,000	47,000,000	various
Groundwater Contact Criteria	11,000	530,000	170,000	190,000	690,000	various
Flammability and Explosivity Screening Level	34,000	31,000	22,000	35,000	ID	various
Groundwater Acute Inhalation Screening Level	67,000	ID	170,000	190,000	ID	various

**Notes and Abbreviations:**

1. NA: Not Analyzed
2. ID: Inadequate data to develop criterion
3. PAHs: Polynuclear Aromatic Hydrocarbons

**TABLE H1**  
**AOI 13 GRIDLEY AREA**  
**TANK #4005**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Date	Sample Depth (feet)	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)				
			Benzene	Toluene	Ethylbenzene	Xylenes	PAHs
MW-1	10/23/1991	8-10	52	120	84	30	<330
MW-1	10/23/1991	14-16	<10	<10	<10	<10	<330
MW-2	10/24/1991	10-12	<10	<10	<10	<10	<330
MW-2	10/24/1991	14-16	<10	<10	<10	<10	<330
MW-3	10/23/1991	10-12	<10	<10	<10	<10	<330
MW-3	10/23/1991	14-16	<10	<10	<10	<10	<330
MW-4	10/23/1991	8-10	<20	290	<50	<50	<330
MW-4	10/23/1991	14-16	<10	<10	<10	<10	<330
HB-1/SB5	10/24/1991	4-6	<10	<10	<10	<10	<330
SB6/MW6	5/26/1993	8-10	<10	<10	<10	<30	NA
SB6/MW6	5/26/1993	14-16	<10	<10	<10	<30	NA
SB7/MW7	5/26/1993	10-12	<10	<10	<10	<30	NA
SB7/MW7	5/26/1993	12-14	<10	<10	<10	<30	NA
MW-8	7/22/1994	9-9.5	<10	<10	25	<30	NA
SB-9	7/22/1994	4-5	<10	36	13	78	NA
MW-10	7/22/1994	7-8	<10	<10	<10	<30	NA
RW-1	9/29/1992	9-11	<10	<10	<10	<30	NA
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>							
<b>Soil: Residential and Commercial I</b>							
Drinking Water Protection Criteria			100	16,000	1,500	5,600	various
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700	various
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable	various
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000	various
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2.8E+06	9.5E+06	4.6E+07	various
Finite VSIC for 5 Meter Source Thickness			34,000	5.1E+06	1.4E+07	6.1E+07	various
Finite VSIC for 2 Meter Source Thickness			79,000	1.2E+07	3.0E+07	1.3E+08	various
Particulate Soil Inhalation Criteria			3.8E+08	2.7E+10	6.7E+10	2.9E+11	various
Direct Contact Criteria			180,000	250,000	140,000	150,000	various
<b>Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)</b>							
Industrial and Commercial Drinking Water Criteria			100	16,000	1500	5600	various
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3.3E+06	1.1E+07	5.4E+07	various
Finite VSIC for 5 Meter Source Thickness			99,000	3.6E+07	1.4E+07	6.5E+07	various
Finite VSIC for 2 Meter Source Thickness			230,000	3.6E+07	3.0E+07	1.3E+08	various
Particulate Soil Inhalation Criteria			4.7E+08	1.2E+10	2.9E+10	1.3E+11	various
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000	various
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000	various
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000	various

**Notes and Abbreviations:**

1. NA: Not Analyzed
2. See Figure H1 for sample locations
3. PAHs: Polynuclear Aromatic Hydrocarbons



FILE NO:G:\49017\001\DOCC\FINAL DRAFT\FIGURE H1.DWG

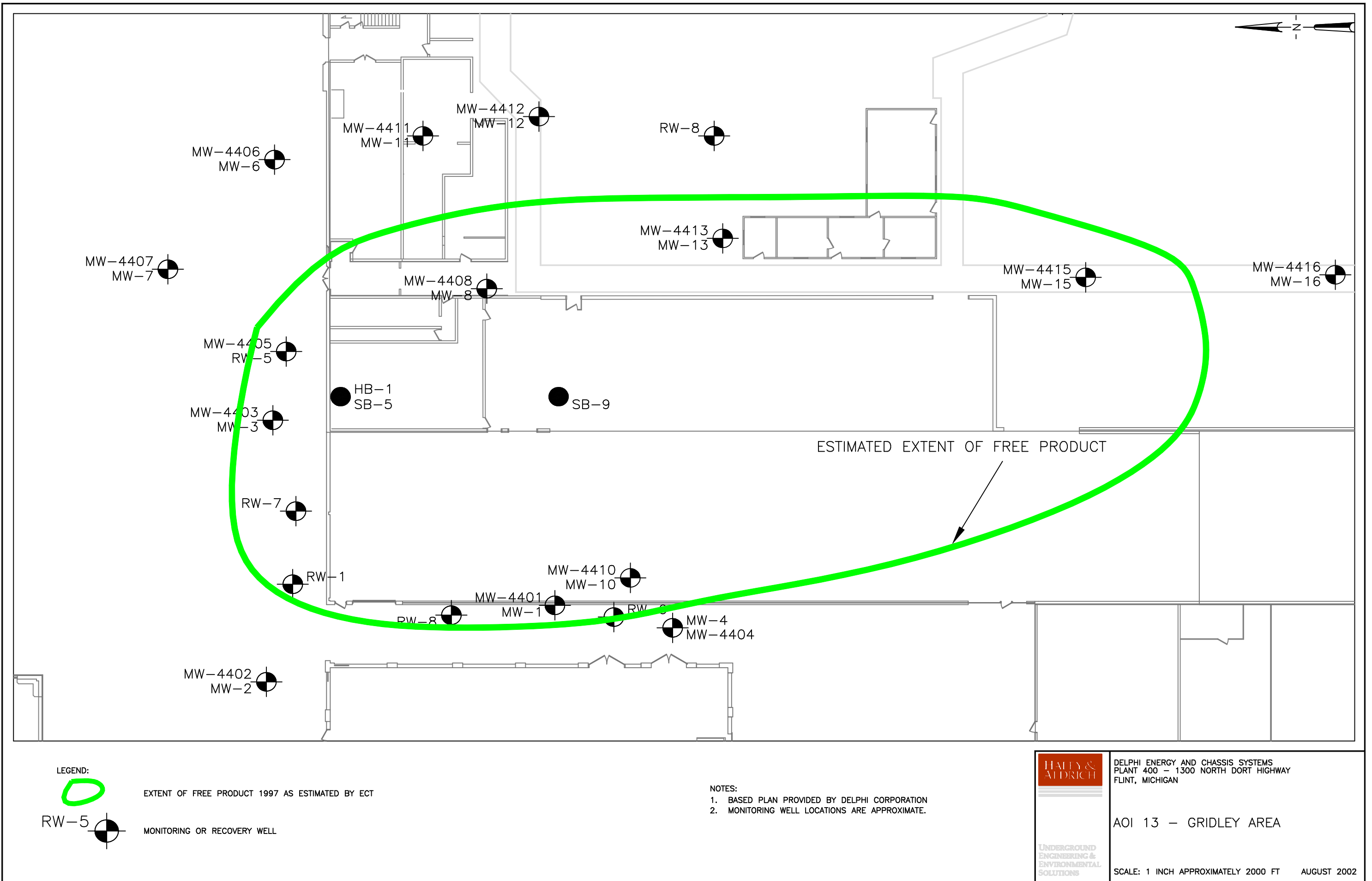


FIGURE H1

## **APPENDIX I**

### **AOI 19 - Previous Sampling Results for the Former Zinc Hydroxide Tanks**

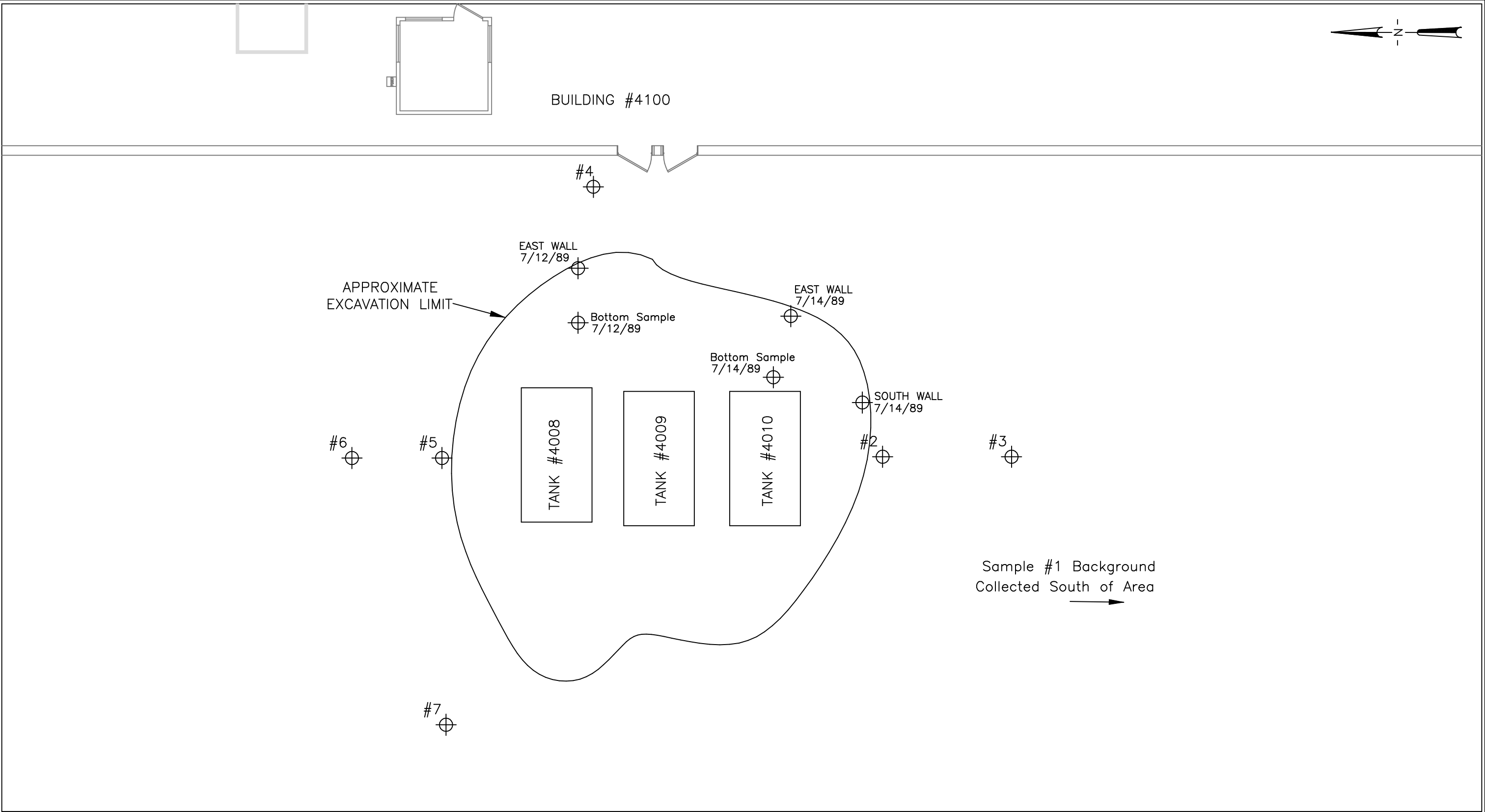
TABLE I1  
AOI 19 - ZINC HYDROXIDE TANK AREA  
SUMMARY OF LABORATORY ANALYSIS RESULTS  
SOIL: ZINC

Sample Identification	Sample Date	Sample Depth (feet below ground level)	Concentrations (ug/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)
			Zinc
East Wall 7/12/89	7/12/89	-	14,000
Bottom Sample 7/12/89	7/12/89	-	200,000
East Wall 7/14/89	7/14/89	-	14,000
Bottom Sample 7/14/89	7/14/89	-	32,000
South Wall 7/14/89	7/14/89	-	81,000
1	Jun-87	2.5	58,000
1	Jun-87	5.0	41,000
1	Jun-87	7.5	30,000
1	Jun-87	10.0	19,000
1	Jun-87	12.5	22,000
2	Jun-87	2.5	16,000
2	Jun-87	5.0	20,000
2	Jun-87	7.5	16,000
2	Jun-87	10.0	7,500
2	Jun-87	12.5	9,300
2	Jun-87	15.0	41,000
3	Jun-87	2.5	13,000
3	Jun-87	5.0	13,000
3	Jun-87	7.5	7,900
3	Jun-87	10.0	10,000
3	Jun-87	12.5	12,000
3	Jun-87	15.0	42,000
4	Jun-87	2.5	13,000
4	Jun-87	7.5	11,000
4	Jun-87	10.0	18,000
4	Jun-87	12.5	14,000
4	Jun-87	15.0	16,000
5	Jun-87	2.5	30,000
5	Jun-87	5.0	32,000
5	Jun-87	7.5	15,000
5	Jun-87	10.0	13,000
5	Jun-87	12.5	11,000
5	Jun-87	15.0	9,000
6	Jun-87	2.5	43,000
6	Jun-87	5.0	12,000
6	Jun-87	7.5	53,000
6	Jun-87	10.0	10,000
6	Jun-87	12.5	13,000
6	Jun-87	15.0	17,000
6	Jun-87	20.0	11,000
7	Jun-87	2.5	41,000
7	Jun-87	5.0	58,000
7	Jun-87	7.5	15,000
7	Jun-87	10.0	11,000
7	Jun-87	12.5	16,000
7	Jun-87	15.0	9,900
7	Jun-87	17.5	11,000
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)			
Soil: Residential and Commercial I			
Statewide Default Background Levels			47,000
Drinking Water Protection Criteria			2,400,000
Groundwater Surface Water Interface Protection Criteria			{G}
Soil Protection Criteria for Surface Water Drinking Water Value			not applicable
Groundwater Contact Protection Criteria			1,000,000,000
Soil Volatilization to Indoor Air Inhalation Criteria			NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			NLV
Finite VSIC for 5 Meter Source Thickness			NLV
Finite VSIC for 2 Meter Source Thickness			NLV
Particulate Soil Inhalation Criteria			ID
Direct Contact Criteria			170,000,000
Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)			
Particulate Soil Inhalation Criteria			ID
Direct Contact Criteria: Industrial and Commercial II			1,000,000,000
Direct Contact Criteria: Commercial III			1,000,000,000
Direct Contact Criteria: Commercial IV			1,000,000,000
Site Specific Background Level (mean+3 standard deviations)			-

Notes and Abbreviations:

1. **Bold:** Indicates result above Michigan Generic Cleanup Criteria. Does not consider background levels.
2. ID: Inadequate data to develop criterion
3. NLV: Chemical is not likely to volatilize under most conditions
4. {G}: GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.

FILE NO: G:\49017\001\DOCC\FINAL DRAFT\FIGURE I1



LEGEND:

#6  
⊕ SOIL SAMPLING LOCATION

- NOTES:
- 1. BASE PLAN PROVIDED BY DELPHI CORPORATION
  - 2. SAMPLING LOCATIONS ARE APPROXIMATE

HATTY &  
ALDRICH

UNDERGROUND  
ENGINEERING &  
ENVIRONMENTAL  
SOLUTIONS

DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

AOI 18 - FORMER ZINC  
HYDROXIDE TANKS

SCALE: 1 INCH = 10 FEET

AUGUST 2002

FIGURE I1

## **APPENDIX J**

### **AOI 24 - Previous Sampling Results for the Former Stoddard Tanks**

**TABLE J1**  
**AOI 24 - FORMER STODDARD TANK AREA**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Depth	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)			
			Benzene	Toluene	Ethylbenzene	Xylenes
OW-1-1	3.5-4.5	Clay	<10	<10	<10	<10
OW-1-5	14.5-15.0	Clay	<10	<10	<10	<10
OW-2-1A	2.5-3.5	Sand	<10	<10	<10	<10
OW-2-2	5.0-5.5	Sand	<10	<10	<10	<10
OW-3-4	9.0-9.5	Sand	<10	<10	<10	<10
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>						
<b>Soil: Residential and Commercial I</b>						
Drinking Water Protection Criteria			100	16,000	1,500	5,600
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2.8E+06	9.5E+06	4.6E+07
Finite VSIC for 5 Meter Source Thickness			34,000	5.1E+06	1.4E+07	6.1E+07
Finite VSIC for 2 Meter Source Thickness			79,000	1.2E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria			3.8E+08	2.7E+10	6.7E+10	2.9E+11
Direct Contact Criteria			180,000	250,000	140,000	150,000
<b>Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)</b>						
Industrial and Commercial Drinking Water Criteria			100	16,000	1500	5600
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3.3E+06	1.1E+07	5.4E+07
Finite VSIC for 5 Meter Source Thickness			99,000	3.6E+07	1.4E+07	6.5E+07
Finite VSIC for 2 Meter Source Thickness			230,000	3.6E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria			4.7E+08	1.2E+10	2.9E+10	1.3E+11
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000

**Notes and Abbreviations:**

1. Samples Collected on: 11/20/92
2. See Figure J1 for sample locations

**TABLE J1**  
**AOI 24 - FORMER STODDARD TANK AREA**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Location	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)			
		Benzene	Toluene	Ethylbenzene	Xylenes
W-1	wall	2,200	6,300	110,000	130,000
W-2	wall	780	580	700	1,600
W-3	wall	ND	ND	ND	ND
W-4	wall	ND	ND	ND	ND
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>					
<b>Soil: Residential and Commercial I</b>					
Drinking Water Protection Criteria		100	16,000	1,500	5,600
Groundwater/Surface Water Interface Protection Criteria		4,000	2,800	360	700
Soil Protection Criteria for Surface Water Drinking Water Value		240	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria		220,000	250,000	140,000	150,000
Soil Volatilization to Indoor Air Inhalation Criteria		1,600	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		13,000	2.8E+06	9.5E+06	4.6E+07
Finite VSIC for 5 Meter Source Thickness		34,000	5.1E+06	1.4E+07	6.1E+07
Finite VSIC for 2 Meter Source Thickness		79,000	1.2E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria		3.8E+08	2.7E+10	6.7E+10	2.9E+11
Direct Contact Criteria		180,000	250,000	140,000	150,000
<b>Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)</b>					
Industrial and Commercial Drinking Water Criteria		100	16,000	1500	5600
Soil Volatilization to Indoor Air Inhalation Criteria		8,400	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		45,000	3.3E+06	1.1E+07	5.4E+07
Finite VSIC for 5 Meter Source Thickness		99,000	3.6E+07	1.4E+07	6.5E+07
Finite VSIC for 2 Meter Source Thickness		230,000	3.6E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria		4.7E+08	1.2E+10	2.9E+10	1.3E+11
Direct Contact Criteria: Industrial and Commercial II		400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial III		400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial IV		400,000	250,000	140,000	150,000

**Notes and Abbreviations:**

1. Samples Collected on: 7/17/1992
2. See Figure J1 for sample locations

**TABLE J1**  
**AOI 24 - FORMER STODDARD TANK AREA**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Depth	Sample Location	Date Sampled	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)			
				Benzene	Toluene	Ethylbenzene	Xylenes
B4-A	10-12	North Wall	04/20/95	<10	44	<10	<30
B4-B	13-15	North Wall	04/20/95	<10	33	<10	<30
B5-A	10-12	West Wall	04/20/95	<10	64	<10	39
B5-B	13-15	West Wall	04/20/95	<10	<10	<10	<30
B6-B	18-20	Center Floor	04/20/95	<10	<10	<10	<30
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>							
<b>Soil: Residential and Commercial I</b>							
Drinking Water Protection Criteria				100	16,000	1,500	5,600
Groundwater/Surface Water Interface Protection Criteria				4,000	2,800	360	700
Soil Protection Criteria for Surface Water Drinking Water Value				240	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria				220,000	250,000	140,000	150,000
Soil Volatilization to Indoor Air Inhalation Criteria				1,600	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)				13,000	2.8E+06	9.5E+06	4.6E+07
Finite VSIC for 5 Meter Source Thickness				34,000	5.1E+06	1.4E+07	6.1E+07
Finite VSIC for 2 Meter Source Thickness				79,000	1.2E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria				3.8E+08	2.7E+10	6.7E+10	2.9E+11
Direct Contact Criteria				180,000	250,000	140,000	150,000
<b>Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)</b>							
Industrial and Commercial Drinking Water Criteria				100	16,000	1500	5600
Soil Volatilization to Indoor Air Inhalation Criteria				8,400	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)				45,000	3.3E+06	1.1E+07	5.4E+07
Finite VSIC for 5 Meter Source Thickness				99,000	3.6E+07	1.4E+07	6.5E+07
Finite VSIC for 2 Meter Source Thickness				230,000	3.6E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria				4.7E+08	1.2E+10	2.9E+10	1.3E+11
Direct Contact Criteria: Industrial and Commercial II				400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial III				400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial IV				400,000	250,000	140,000	150,000

**Notes and Abbreviations:**

1. Samples Collected on: 4/20/1995
2. See Figure J1 for sample locations



**TABLE J2**  
**AOI 24 - FORMER STODDARD TANK AREA**  
**LABORATORY ANALYSIS RESULTS**  
**GROUNDWATER: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Date	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level			
		Benzene	Toluene	Ethylbenzene	Xylenes
Effluent-4" Recovery Well (FD 4024; Within Excavation)	08/16/93	<1	<1	<1	<3
Recovery Well (FD-4024)	09/15/93	<1	<1	<1	<3
Recovery Well (FD-4024)	10/31/94	<1	<1	<1	<3
Recovery Well (FD-4024)	03/24/95	<1	<1	<1	<3
OW-1 (MW-4501)	03/24/95	<1	<1	<1	<3
OW-2 (MW-4502)	03/24/95	<1	<1	<1	<3
Duplicate of OW-2	03/24/95	<1	<1	<1	<3
OW-3 (MW-4503)	03/24/95	<1	65.0	<1	<3
OW-3 (MW-4503)	04/20/95	<1	45.0	<1	<3
Field Blank	03/24/95	<1	<1	<1	<3
Trip Blank	03/24/95	<1	<1	<1	<3
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>					
<b>Groundwater: Residential and Industrial-Commercial</b>					
Residential & Commercial I Drinking Water Criteria		5	790	74	280
Industrial & Commercial II, III, IV, Drinking Water Criteria		5	790	74	280
Groundwater Surface Water Interface Criteria		200	140	18	35
Surface Water Drinking Water Value		12	not applicable	not applicable	not applicable
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria		5,600	530,000	170,000	190,000
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.		36,000	530,000	170,000	190,000
Groundwater Contact Criteria		11,000	530,000	170,000	190,000
Flammability and Explosivity Screening Level		34,000	31,000	22,000	35,000
Groundwater Acute Inhalation Screening Level		67,000	ID	170,000	190,000

**Notes and Abbreviations:**

1. ID = Inadequate data to develop criterion
2. See Figure J1 for sample locations

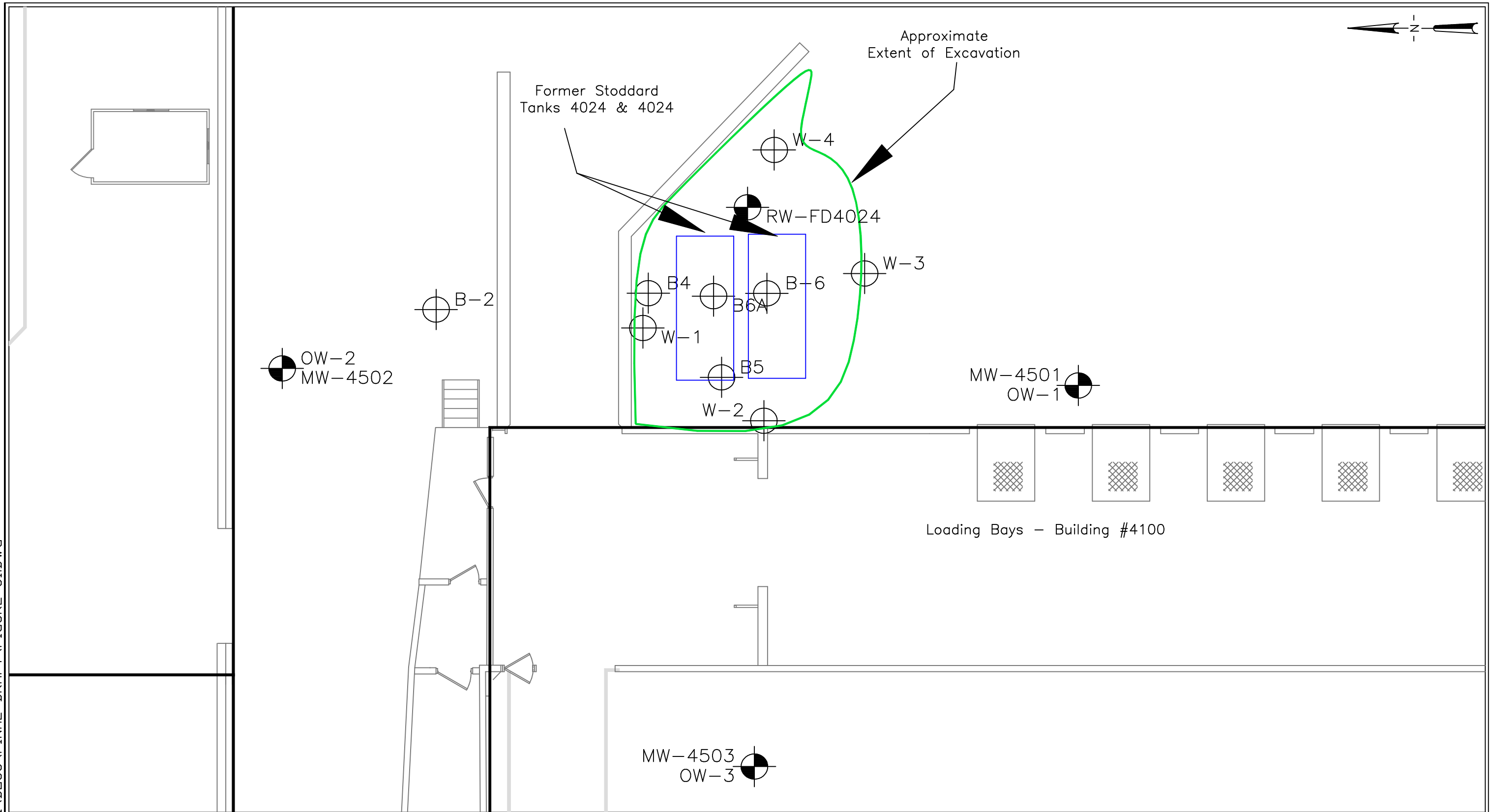
**TABLE J2**  
**AOI 24 - FORMER STODDARD TANK AREA**  
**LABORATORY ANALYSIS RESULTS**  
**GROUNDWATER: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Location	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level			
		Benzene	Toluene	Ethylbenzene	Xylenes
B-1	OW-2	<1	<1	<1	<1
B-2	OW-3	<1	<1	<1	<1
B-3	OW-1	<1	<1	<1	<1
1 (RW D4024)	Excavation Recovery Well	<1	<1	<1	<3
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>					
<b>Groundwater: Residential and Industrial-Commercial</b>					
Residential & Commercial I Drinking Water Criteria		5	790	74	280
Industrial & Commercial II, III, IV, Drinking Water Criteria		5	790	74	280
Groundwater Surface Water Interface Criteria		200	140	18	35
Surface Water Drinking Water Value		12	not applicable	not applicable	not applicable
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria		5,600	530,000	170,000	190,000
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.		36,000	530,000	170,000	190,000
Groundwater Contact Criteria		11,000	530,000	170,000	190,000
Flammability and Explosivity Screening Level		34,000	31,000	22,000	35,000
Groundwater Acute Inhalation Screening Level		67,000	ID	170,000	190,000

**Notes and Abbreviations:**

1. ID = Inadequate data to develop criterion
2. Samples Collected on: 12/1/1992
3. See Figure J1 for sample locations

FILE NO: G:\49017\001\DOCC\FINAL DRAFT\FIGURE J1.DWG



LEGEND:

- OW-1 MONITORING OR RECOVERY WELL LOCATION
- W-4 SOIL SAMPLING OR BORING LOCATION

NOTES:

1. BASE PLAN PROVIDED BY DELPHI AUTOMOTIVE SYSTEMS
2. SAMPLING LOCATIONS ARE APPROXIMATE.

HALLY &  
ALDRICH

UNDERGROUND  
ENGINEERING &  
ENVIRONMENTAL  
SOLUTIONS

DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

AOI 24 - FORMER STODDARD  
TANK AREA

SCALE: 1 INCH = 10 FEET

FEBRUARY 2002

## **APPENDIX K**

### **AOI 26 – Previous Sampling Results for the Container Storage Area**

STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: <http://www.deq.state.mi.us>

RUSSELL J. HARDING, Director

REPLY TO:

WASTE MANAGEMENT DIVISION  
PO BOX 30241  
LANSING MI 48909-7741

February 13, 1997

CERTIFIED MAIL

Mr. Bill Schroeck  
Environmental Operations  
DELPHI E. Flint-East  
1300 North Dort Highway  
Flint, Michigan 48556

Dear Mr. Schroeck:

SUBJECT: Interim Closure Report, Certification and Post-Closure Care Program, GM DELPHI  
Dort Highway Complex, Flint, Genesee County (GM DELPHI): MID 005 356 647

The Michigan Department of Environmental Quality (MDEQ) has reviewed the Interim Closure Report and Certification portion of the Interim Closure Report, Certification and Post-Closure Care Program for the subject facility. The Interim Closure Report and Certification consist of the September 30, 1991 report, and the November 19, 1996 addendum to the report. Based on this review, GM DELPHI is hereby released from its closure responsibilities under Part 111 (Hazardous Waste Management) of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. GM DELPHI is, therefore, no longer required to demonstrate financial capability for closure and liability coverage for this facility. The MDEQ's Waste Management Division will review the post-closure care program provided and comment on or approve the post-closure care program, as appropriate, under separate cover.

Facility Status

With this acceptance of the certification of closure, the subject facility can no longer be operated as a hazardous waste treatment, storage, or disposal facility. If hazardous waste is generated at the facility, it must be managed in accordance with all applicable generator requirements in Part 3 of the Part 111 Administrative Rules.

Financial Capability

GM DELPHI demonstrates financial assurance for closure by use of a financial test. In accordance with R 299.9703(5) of the Part 111 Administrative Rules, this acceptance of the certification of closure constitutes a release from the requirement to maintain such financial assurance. GM DELPHI is no longer required to demonstrate the required closure coverage with updated financial test information for this facility.



February 13, 1997

GM DELPHI demonstrates financial responsibility for pollution liability coverage by use of a financial test. In accordance with R 299.9710(9), this acceptance of the certification of closure constitutes a release from the requirement to maintain such financial responsibility. GM DELPHI is longer required to demonstrate the required closure coverage with updated financial test information.

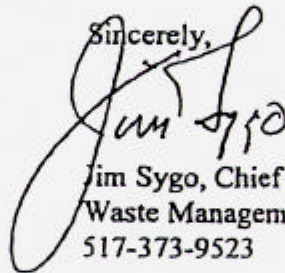
Because long-term monitoring and maintenance of the units are required by R 299.9613, GM DELPHI must establish and maintain financial assurance for post-closure care. Please demonstrate this coverage in the next financial test submittal, due by March 31, 1997.

Corrective Action Responsibilities

This acceptance of the certification of closure does not constitute a release from any corrective action responsibilities GM DELPHI may have under Part 111 or the federal Resource Conservation and Recovery Act of 1976, as amended. In addition to the responsibility to close regulated hazardous waste management units, owners and operators are responsible to conduct corrective actions for releases of hazardous wastes and constituents from solid waste management units.

If you have questions regarding this letter, please contact Mr. Dan Dailey of the Hazardous Waste Program Section, at 517-335-6610.

Sincerely,



Jim Sygo, Chief  
Waste Management Division  
517-373-9523

cc: Mr. Steve Buda, MDEQ  
Ms. Elizabeth Browne/Mr. Bill Yocum, MDEQ-Shiawassee  
Mr. Steve Sliver, MDEQ, HWP/C&E File  
Mr. Al Taylor/Ms. Jan Sealock, MDEQ  
Mr. Dan Dailey, MDEQ

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
8-1	1.0	Unit 1: Fill (Silty Sands and Clays) Background	6,900	74,000	<2000	6,500	16,000	21,000	<100	16,000	<500	<1,000	81,000	<500
8-2	3.0	Unit 2: Upper Silty Sandy Clays Background	5,900	30,000	<2,000	<5,000	19,000	18,000	<100	15,000	<500	<1,000	130,000	<500
8-3	5.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	21,000	<2,000	<5,000	8,300	8,700	<1,000	11,000	<500	<1,000	28,000	<500
8-4A	7.0		<5,000	65,000	<2,000	7,000	8,800	13,000	<1,000	16,000	<500	<1,000	39,000	<500
8-4B	7.0		<5,000	65,000	<2,000	<5,000	8,100	12,000	<1,000	13,000	<500	<1,000	24,000	<500
1-1	2.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	<5,000	32,000	<2,000	5,000	6,300	8,800	<100	<1,000	<500	<1,000	42,000	<500
1-2	4.0		6,200	39,000	<2,000	11,000	12,000	13,000	<100	23,000	<500	<1,000	52,000	<500
1-3	6.0		<5,000	56,000	<2,000	6,200	31,000	24,000	<100	19,000	<500	<1,000	180,000	<500
1-4	8.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	5,800	30,000	<2,000	<5,000	13,000	13,000	<1,000	19,000	<500	<1,000	55,000	<500
1-5	1.0		6,400	50,000	<2,000	<5,000	13,000	12,000	<1,000	25,000	<500	<1,000	39,000	<500
1-6	16.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	40,000	<2,000	<5,000	4,000	6,800	<1,000	<10,000	<500	<1,000	13,000	<500
2-2	3.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	9,000	<2000	<5,000	84,000	12,000	<100	<10,000	<500	<100	31,000	<500
2-3	5.6	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	5,000	31,000	<2,000	6,300	11,000	16,000	<100	18,000	<500	<1,000	45,000	<500
2-4A	7.0		<5,000	17,000	<2,000	5,900	10,000	13,000	<100	16,000	<500	<1,000	34,000	<500
2-4B	7.6	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	16,000	<2,000	<5,000	3,500	6,000	<1,000	<10,000	<500	<1,000	13,000	<500
2-5	10.6		<5,000	60,000	<2,000	5,300	8,000	10,000	<1,000	16,000	<500	<1,000	28,000	<500
2-6	13.6	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	46,000	<2,000	5,100	7,100	11,000	<1,000	11,000	<500	<1,000	28,000	<500
2-7	15.6		<5,000	46,000	<2,000	5,100	7,100	11,000	<1,000	11,000	<500	<1,000	28,000	<500
3-2	3.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	36,000	< 2,000	<5,000	8,000	9,300	<100	<10,000	<500	<100	110,000	<500
3-3	5.6	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	<5,000	40,000	<2,000	6,800	8,300	8,500	<100	15,000	<500	<1,000	53,000	<500
3-4	7.6		5,100	34,000	<2,000	7,100	13,000	8,600	<100	20,000	<500	<1,000	38,000	<500
3-5	10.6	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	17,000	<2,000	6,400	8,000	7,400	<1,000	12,000	<500	<1,000	41,000	<500
3-6	15.6	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,300	60,000	<2,000	5,600	9,500	11,000	<1,000	14,000	<500	<1,000	33,000	<500
4-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	510	50,000	<2000	5,000	4,000	22,000	<100	13,000	<500	<100	90,000	<500
4-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,500	58,000	<2,000	8,100	13,000	10,000	<100	19,000	<500	<1,000	50,000	<500
4-3	5.0		5,800	70,000	<2,000	5,000	17,000	13,000	<100	19,000	<500	<1,000	41,000	<500
4-4	7.0		5,700	46,000	<2,000	5,000	12,000	12,000	<100	19,000	<500	<1,000	38,000	<500
4-5	10.0		<5,000	42,000	<2,000	<5,000	12,000	15,000	<100	17,000	<500	<1,000	34,000	<500
4-6	15.0		6,000	60,000	<2,000	5,400	13,000	16,000	<100	20,000	<500	<1,000	35,000	<500
4-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	42,000	<2,000	<5,000	12,000	15,000	<1,000	17,000	<500	<1,000	34,000	<500
4-6	15.0		6,000	60,000	<2,000	5,400	13,000	16,000	<1,000	20,000	<500	<1,000	35,000	<500
5-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	38,000	<2000	68,000	23,000	19,000	<100	11,000	<500	<100	95,000	<500
5-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,300	72,000	<2,000	8,700	13,000	11,000	<100	22,000	<500	<1,000	37,000	<500
5-3	5.0		6,000	18,000	<2,000	5,100	11,000	13,000	<100	17,000	<500	<1,000	34,000	<500

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
5-4	7.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	6,600	30,000	<2,000	5,500	12,000	13,000	<1,000	18,000	<500	<1,000	33,000	<500
5-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,700	10,000	<2,000	5,800	13,000	16,000	<1,000	22,000	<500	<1,000	40,000	<500
5-6	15.0		6,000	32,000	<2,000	<5,000	12,000	15,000	<1,000	16,000	<500	<1,000	30,000	<500
6-1	1.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,700	74,000	<2000	68,000	66,000	27,000	<100	26,000	<500	<100	390,000	<500
6-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,400	91,000	<2,000	13,000	70,000	46,000	<100	33,000	<500	<1,000	660,000	<500
6-3	5.0		5,600	65,000	<2,000	11,000	6.1E+06	22,000	<100	20,000	<500	<1,000	110,000	<500
6-4	7.0		6,200	90,000	<2,000	7,200	48,000	26,000	<100	21,000	<500	<1,000	380,000	<500
6-5	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	6,300	39,000	<2,000	6,000	18,000	15,000	<1,000	16,000	<500	<1,000	74,000	<500
6-6	15.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,800	42,000	<2,000	6,600	13,000	14,000	<1,000	22,000	<500	<1,000	36,000	<500
7-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,000	48,000	<2000	16,000	59,000	44,000	<100	22,000	<500	150	920,000	<500
7-2	3.0		12,000	96,000	<2000	8,000	24,000	18,000	<100	13,000	<500	<100	250,000	<500
7-3	5.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	8,900	50,000	<2,000	9,600	15,000	13,000	<100	22,000	<500	<1,000	67,000	<500
7-4	7.0		9,000	52,000	<2,000	15,000	19,000	13,000	<100	35,000	<500	<1,000	45,000	<500
7-5	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	14,000	<2,000	<5,000	3,300	5,600	<1,000	<10,000	<500	<1,000	9,600	<500
7-6	15.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	40,000	<2,000	6,000	13,000	15,000	<1,000	21,000	<500	<1,000	35,000	<500
8-1	1.0	Unit 1: Fill (Silty Sands and	6,900	74,000	<2000	6,500	16,000	21,000	<100	16,000	<500	<1,000	81,000	<500
8-3	5.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	21,000	<2,000	<5,000	8,300	8,700	<1,000	11,000	<500	<1,000	28,000	<500
8-4A	7.0		<5,000	65,000	<2,000	7,000	8,800	13,000	<1,000	16,000	<500	<1,000	39,000	<500
8-4B	7.0		<5,000	65,000	<2,000	<5,000	8,100	12,000	<1,000	13,000	<500	<1,000	24,000	<500
8-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Background</i>	<5,000	130,000	<2,000	8,100	13,000	17,000	<1,000	24,000	<500	<1,000	39,000	<500
8-6	15.0		5,400	110,000	<2,000	5,300	12,000	18,000	<1,000	18,000	<500	<1,000	32,000	<500
C9-1	1.0	Unit 2: Upper Silty Sandy Clays <i>Background</i>	5,400	110,000	<2,000	5,300	12,000	18,000	<100	18,000	<500	<1,000	32,000	<500
C9-2	2.5		5,700	44,000	<2,000	6,000	20,000	30,000	<100	17,000	<500	<1,000	110,000	<500
9-2	3.0		<5,000	32,000	<2,000	<5,000	11,000	14,000	<100	17,000	<500	<1,000	88,000	<500
9-3	5.0		<5,000	29,000	<2,000	<5,000	16,000	13,000	<100	25,000	<500	<1,000	140,000	<500
9-4A	7.0		5,400	48,000	<2,000	7,800	21,000	15,000	<100	18,000	<500	<1,000	140,000	<500
9-5A	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	19,000	<2,000	<5,000	10,000	10,000	<1,000	13,000	<500	<1,000	47,000	<500
9-5B	10.0	Unit 4: Lower Silty Sandy Clays; <i>Background</i>	<5,000	16,000	<2,000	<5,000	12,000	14,000	<1,000	20,000	<500	<1,000	35,000	<500
9-6	15.0		6,100	34,000	<2,000	5,900	13,000	14,000	<1,000	24,000	<500	<1,000	38,000	<500
10-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,400	30,000	<2000	<5,000	19,000	21,000	<100	14,000	<500	<1,000	100,000	<500
10-2A	3.0	Unit 2: Upper Silty Sandy Clays <i>Background</i>	<5,000	27,000	<2,000	<5,000	4,600	5,600	<100	<10,000	<500	<1,000	21,000	<500
10-2B	3.0		<5,000	48,000	<2,000	7,900	10,000	8,200	<100	19,000	<500	<1,000	26,000	<500
10-4	7.0		5,900	54,000	<2,000	6,900	12,000	13,000	<100	20,000	<500	<1,000	37,000	<500
10-5A	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	24,000	<2,000	<5,000	5,200	6,900	<1,000	<10,000	<500	<1,000	15,000	<500
10-5B	10.0	Unit 4: Lower Silty Sandy Clays;	<5,000	46,000	<2,000	<5,000	9,900	13,000	<1,000	14,000	<500	<1,000	29,000	<500



TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
10-6	15.0	Background	5,200	22,000	<2,000	5,200	12,000	14,000	<1,000	20,000	<500	<1,000	40,000	<500
11-1	1.0	Unit 1: Fill (Silty Sands and Clays) Foreground	6,000	30,000	<2000	16,000	38,000	31,000	<100	19,000	<500	<100	28,000	<500
11-2	3.0	Unit 2: Upper Silty Sandy Clays Background	<5,000	41,000	<2,000	7,500	4,800	8,500	<100	12,000	<500	<1,000	72,000	<500
11-3	5.0		8,800	72,000	<2,000	10,000	16,000	15,000	<100	19,000	<500	<1,000	150,000	<500
11-4A	7.0		12,000	100,000	<2,000	9,000	15,000	9,600	<100	32,000	<500	<1,000	50,000	<500
11-4B	7.0	Unit 3: Silty Sands Interbedded With Clay; Background	<5,000	10,000	<2,000	<5,000	4,700	0	<1,000	<10,000	<500	<1,000	25,000	<500
11-5	10.0	Unit 4: Lower Silty Sandy Clays; Background	5,900	39,000	<2,000	5,900	12,000	14,000	<1,000	21,000	<500	<1,000	37,000	<500
11-6	15.0		7,200	44,000	<2,000	6,700	13,000	14,000	<1,000	24,000	<500	<1,000	36,000	<500
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)														
Soil: Residential and Commercial I														
Statewide Default Background Levels			5,800	75,000	1,200	18,000 total	32,000	21,000	130	20,000	410	1,000	47,000	390
Drinking Water Protection Criteria			23,000	1.3E+06	6,000	30,000	5.80E+06	700,000	1,700	100,000	4,000	4,500	2.4E+06	4,000 {P}
Groundwater Surface Water Interface Protection Criteria			70,000	{G}	{G}	3,300	{G}	{G}	100	{G}	400	500	{G}	400 {P}
Soil Protection Criteria for Surface Water Drinking Water Value			16,000	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria			2.0E+06	1.0E+09	2.3E+08	1.4E+08	1.0E+09	ID	47,000	1.0E+09	7.80E+07	2.0E+08	1.0E+09	250,000 {P}
Soil Volatilization to Indoor Air Inhalation Criteria			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 5 Meter Source Thickness			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 2 Meter Source Thickness			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Particulate Soil Inhalation Criteria			720,000	3.3E+08	1.7E+06	260,000	1.3E+08	1.0E+08	ID	1.3E+07	1.3E+08	6.7E+06	ID	250,000 {P}
Direct Contact Criteria			7,600	3.7E+07	550,000	2.5E+06	2.0E+07	400,000	160,000	4.0E+07	2.6E+06	2.5E+06	1.7E+08	12,000 {P}
Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)														
Particulate Soil Inhalation Criteria			910,000	1.5E+08	2.2E+06	240,000	5.9E+07	4.4E+07	ID	1.6E+07	5.9E+07	2.9E+06	ID	250,000 {P}
Direct Contact Criteria: Industrial and Commercial II			61,000	2.5E+08	4.1E+06	1.7E+07	1.4E+08	900,000 draft	1.1E+06	2.7E+08	1.8E+07	1.7E+07	1.0E+09	250,000 {P}
Direct Contact Criteria: Commercial III			90,000	2.9E+08	4.2E+06	2.0E+07	1.6E+08	400,000	1.2E+06	3.1E+08	2.1E+07	1.9E+07	1.0E+09	250,000 {P}
Direct Contact Criteria: Commercial IV			74,000	2.7E+08	4.1E+06	1.8E+07	1.5E+08	400,000	1.2E+06	2.9E+08	1.9E+07	1.8E+07	1.0E+09	250,000 {P}
Site Specific Background Level (mean+3 standard deviations)			-	-	-	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:

- Bold:** Indicates result above Michigan Generic Cleanup Criteria. Does not consider background levels.
- ID: Inadequate data to develop criterion
- NLV: Chemical is not likely to volatilize under most conditions
- {1}: Using Chromium VI Criteria except surface water drinking water value (Cr III)
- {G}: GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.
- {P}: Amenable or Method OIA-1677 analysis are used to quantify cyanide concentrations for compliance with all groundwater criteria.

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
1-1	2.0	Foreground Soils	ND	820	150	630	ND	ND	ND	ND	ND	ND	ND
1-2	4.0		ND	340	90	450	ND	ND	ND	ND	ND	ND	ND
1-3	6.0		ND	790	150	1,230	ND	ND	ND	ND	ND	ND	ND
1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-5	11.0	Foreground Soils; upper saturated zone	ND	440	80	610	ND	ND	ND	ND	ND	ND	ND
1-6	16.0		ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND
2-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-3	5.6		ND	ND	ND	ND	3,000	ND	ND	ND	ND	ND	ND
2-4A	7.0		ND	ND	ND	ND	2,300	280	ND	ND	ND	ND	ND
2-4B	7.6	Foreground Soils; upper saturated zone	ND	2,600	90	1,180	7,600	9,600	ND	720	ND	ND	ND
2-5	10.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-6	13.6		ND	170	ND	ND	1,000	ND	ND	200	ND	ND	ND
2-7	15.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-2	3.6	Foreground Soils	ND	ND	ND	ND	640	ND	ND	ND	ND	ND	ND
3-3	5.6		ND	ND	ND	ND	1,300	ND	ND	ND	ND	ND	ND
3-4	7.6		ND	ND	ND	ND	940	ND	ND	ND	ND	ND	ND
3-5	10.6	Foreground Soils; upper saturated zone	ND	ND	ND	ND	1,500	ND	ND	ND	ND	ND	ND
3-6	15.6		ND	ND	ND	ND	9,300	660	ND	ND	160	ND	ND
4-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	130	130	ND	ND	11,000	ND	ND
4-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	12,000	ND	ND
5-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
6-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	2,200	ND	ND
6-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-4	7.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-5	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I0-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I1-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-1	2.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-3	5.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-1	2.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-4	8.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-1	1.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-2	3.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-5	12.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-1	1.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-3	5.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-5	13.0		ND	ND	100	330	ND	ND	630	ND	ND	ND	ND
OW5-1	1.6	Foreground Soils	ND	4,100	3,000	25,700	31,000	ND	ND	ND	510	ND	ND
OW5-2	3.6		ND	1,300	4,000	3,400	ND	ND	ND	ND	ND	ND	ND
OW5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
OW5-4	8.0	Foreground Soils;Upper Sat Zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-2	3.6		ND	80	ND	ND	ND	ND	ND	ND	200	ND	ND
OW6-3	5.0	Foreground Soils; upper saturated zone	ND	100	ND	ND	390	ND	ND	ND	ND	ND	ND
OW6-4	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)										
			Soil: Residential and Commercial I										
Drinking Water Protection Criteria			100	16,000	1,500	5,600	4,000	18,000	1,400	100	100	100	various
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700	4000	ID	ID	900	4,000	19000	various
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	220	580	940	various
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000	250,000	230,000	23,000	11,000	7,100	45,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2.8E+06	9.5E+06	4.6E+07	3.8E+06	2.1E+06	180,000	180,000	78,000	210,000	various
Finite VSIC for 5 Meter Source Thickness			34,000	5.1E+06	1.4E+07	6.1E+07	1.2E+07	5.9E+06	420,000	480,000	170,000	590,000	various
Finite VSIC for 2 Meter Source Thickness			79,000	1.2E+07	3.0E+07	1.3E+08	28,000,000	1.4E+07	990,000	1.1E+06	28,000,000	1.4E+06	various
Particulate Soil Inhalation Criteria			3.8E+08	2.7E+10	6.7E+10	2.9E+11	6.7E+10	3.3E+10	2.3E+09	5.4E+09	6.7E+10	6.6E+09	various
Direct Contact Criteria			180,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	460,000	1.3E+06	various
			Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)										
Industrial and Commercial Drinking Water Criteria			100	16,000	1500	5600	4,000	50,000	1,400	100	100	100	various
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000	460,000	430,000	42,000	60,000	37,000	240,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3.3E+06	1.1E+07	5.4E+07	4.5E+06	2.5E+06	210,000	60,000	260,000	700,000	various
Finite VSIC for 5 Meter Source Thickness			99,000	3.6E+07	1.4E+07	6.5E+07	1.5E+07	6.0E+06	430,000	1.4E+06	440,000	1.7E+06	various
Finite VSIC for 2 Meter Source Thickness			230,000	3.6E+07	3.0E+07	1.3E+08	3.1E+07	1.4E+07	1.0E+06	3.3E+06	1.1E+06	4.0E+06	various
Particulate Soil Inhalation Criteria			4.7E+08	1.2E+10	2.9E+10	1.3E+11	2.9E+10	1.5E+10	1.0E+09	6.8E+09	2.3E+09	8.3E+09	various
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various

Notes and Abbreviations:

1. See Figure K1 for sampling locations.
2. **Bold** and Shaded: Indicates result is greater than Michigan DEQ Generic Cleanup Criteria.

**TABLE K2**  
**AOI 26 - CONTAINER STORAGE AREA**  
**LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE STORAGE AREA CLOSURE INVESTIATION (1989-1991)**  
**WATER: METALS (DISSOLVED)**

Sample Identification	Sample Date	Sample Description	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level									
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Selenium	Silver	Zinc
OW-1	6/20/1990	Upper Saturated Unit	6	12	<10	6	9	<5	<.04	<5	3	7
OW-1	7/5/1990		5	10	<10	5	3	<5	<.04	<5	<1	3
OW-2	6/20/1990		15	230	10	5	12	<5	<.04	<5	13	11
OW-2	7/5/1990		13	28	<10	9	8	6	<.04	6	2	18
OW-3	6/20/1990		29	340	10	10	20	800	<.04	800	17	23
OW-3	7/5/1990		27	39	<10	11	11	12	<.04	12	2	27
OW-4	6/20/1990		20	230	<10	9	18	6	<.04	6	12	18
OW-4	7/5/1990		16	23	<10	7	6	<5	<.04	<5	<1	18
OW-5	6/20/1990		8	340	<10	4	11	<5	<.04	<5	10	600
OW-5	7/5/1990		<5	35	<10	2	3	<5	<.04	<5	1	3
OW-6	6/20/1990		39	470	10	17	30	15	<.04	15	23	33
OW-6	7/5/1990		29	37	<10	12	10	10	<.04	10	1	23
TB	7/5/1990	<5	<10	<10	2	1	<5	<.04	<5	<1	<1	
FB1	7/5/1990	<5	<10	<10	<2	1	<5	<.04	<5	<1	<1	
OW-7	5/20/1991	Lower Saturated Unit	2	12	12	<2	1	<5	<.02	<.5	1	<1
OW-11	5/20/1991		<.5	<10	<10	<2	1	5	<.02	<.5	1	1
OW-12	5/20/1991		1	<10	<10	<2	1	<5	<.02	<.5	1	<1
OW-13	5/20/1991		<.5	<10	<10	<2	2	<5	<.02	<.5	1	<1
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)												
Groundwater: Residential and Industrial-Commercial												
Residential & Commercial I Drinking Water Criteria			50	2,000	5	100	1,000	4	2	50	34	2,400
Industrial & Commercial II, III, IV, Drinking Water Criteria			50	2,000	5	100	1,000	4	2	50	98	5,000
Groundwater Surface Water Interface Criteria			150	{G}	{G}	11	{G}	{G}	0.0013	5	0.2	{G}
Surface Water Drinking Water Value			50	1,900	2.5	not applicable	not applicable	14	not applicable	not applicable	not applicable	not applicable
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Groundwater Contact Criteria			4,300	1.4E+07	190,000	460,000	7.4E+06	ID	56	970,000	1.5E+06	1.1E+08
Flammability and Explosivity Screening Level			ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Groundwater Acute Inhalation Screening Level			ID	ID	ID	ID	ID	ID	ID	ID	ID	ID

**Notes and Abbreviations:**

1. **Bold:** Indicates results greater than Michigan DEQ Generic Cleanup Criteria.
2. ID: Inadequate data to develop criterion
3. NLV: Chemical is not likely to volatilize under most conditions
4. {1}: Chromium VI MDEQ Criteria Shown except for surface water drinking water criteria (Cr III)
5. {G}: GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.

TABLE K2  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
WATER: VOLATILE ORGANIC COMPOUNDS

Sample Identification	Sample Date	Sample Description	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level																			
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1-Dichloroethane	Methylene Chloride	trans -1,2-Dichloroethene	1,1-Dichloroethene	cis -1,2-Dichloroethene	Chloroform	1,1,1-Tri chlorethane	1,2-Di chloroethane	Trichloroethene	1,1,2-Tri chloroethane	Tetra chloroethene	Chloro benzene	1,4-Dichloro benzene	1,2-Dichloro benzene	Remaining VOCs	
OW-1	06/20/90	Upper Saturated Unit	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-1	07/05/90		ND	ND	ND	ND	ND	ND	ND	12	ND	46	ND	ND	5	ND	ND	ND	ND	ND	ND	
OW-1	09/07/90		ND	ND	ND	ND	290	ND	ND	75	270	ND	ND	ND	6.8	ND	ND	ND	ND	ND	ND	
OW-1	03/26/91		ND	ND	ND	ND	ND	ND	ND	37	97	ND	ND	ND	4.5	ND	ND	ND	ND	ND	ND	
OW-2	06/20/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-2	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-2	09/07/90		ND	ND	ND	ND	ND	ND	ND	120	93	ND	16	ND	190	ND	3.1	ND	ND	ND	ND	
OW-2	03/26/91		ND	ND	ND	ND	ND	ND	ND	84	37	ND	13	ND	170	ND	1.7	ND	ND	ND	ND	
OW-3	06/20/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-3	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND	ND	ND	ND	
OW-3	09/07/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-3	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-4	06/20/90		ND	100	83	310	ND	ND	ND	ND	ND	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-4	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	
OW-4	09/07/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45	ND	1	ND	ND	ND	ND	ND	ND	
OW-4	03/26/91		8.8	46	8	32	88	30	ND	2,200	200	ND	11,000	4.8	37	ND	ND	ND	ND	ND	ND	
OW-5	06/20/90		2.5	95	75	310	ND	ND	ND	ND	ND	74	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-5	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-5	09/07/90		ND	ND	ND	ND	420	ND	ND	260	ND	ND	2,800	ND	1,200	ND	ND	ND	ND	ND	ND	
OW-5	03/26/91		ND	ND	ND	9.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-6	06/20/90		ND	ND	ND	ND	ND	5,000	ND	ND	ND	670	ND	ND	1,100	ND	ND	ND	ND	ND	ND	
OW-6	07/05/90		ND	ND	ND	ND	ND	ND	ND	62	ND	63	ND	ND	300	ND	ND	ND	ND	ND	ND	
OW-6	09/07/90		ND	ND	ND	ND	6.7	ND	ND	ND	ND	ND	170	ND	460	ND	ND	ND	ND	ND	ND	
OW-6	03/26/91		ND	9.2	5.9	10.1	1,100	10	35	440	440	23	7,500	ND	3,400	ND	ND	ND	ND	ND	ND	
OW-8	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-8 Duplicate	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	50	ND	7.9	17	4.8	ND	ND	ND	ND	ND	
OW-8	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	81	ND	0.8	9.1	4.3	ND	ND	ND	ND	ND	ND	
OW-8 Duplicate	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	88	ND	1.4	11	4.6	ND	ND	ND	ND	ND	ND	
OW-9	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	32	ND	1.6	4.9	ND	ND	ND	ND	ND	ND	ND	
OW-9	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	
OW-10	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	43	ND	ND	ND	ND	ND	ND	
OW-10	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-7	10/04/90	Lower Saturated Unit	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-7	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-7	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-11	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-12	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-12 Duplicate	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
OW-13	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-4611	05/03/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-4611 Duplicate	05/03/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Trip Blanks	07/05/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Trip Blanks	10/04/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Trip Blanks	03/25/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Trip Blanks	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Trip Blanks	05/20/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Field Blanks	10/04/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Field Blanks	03/25/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Field Blanks	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Field Blanks	07/05/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Field Blanks	05/20/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)																						
Groundwater: Residential and Industrial-Commercial																						
Residential & Commercial I Drinking Water Criteria	5	790	74	280	880	5.0 {A}	100	7.0 {A}	70	100 {A,W}	5.0 {A}	5.0 {A}	5	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	various		
Industrial & Commercial II, III, IV, Drinking Water Criteria	5	790	74	280	2,500	5.0 {A}	100	7.0 {A}	70	100 {A,W}	5.0 {A}	5.0 {A}	5	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	various		
Groundwater Surface Water Interface Criteria	200	140	18	35	ID	940	ID	65	ID	170	200	360	200	330 {X}	45 {X}	47	13	13	various			
Surface Water Drinking Water Value	12	not applicable	not applicable	not applicable	not applicable	47	not applicable	24	not applicable	77	29	6	29	12	11	not applicable	not applicable	not applicable	various			
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria	5,600	530,000	170,000	190,000	1.0E+06	220,000	85,000	200	96,000	28,000	15,000	9,600	15,000	17,000	25,000	210,000	16,000	160,000	various			
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.	36,000	530,000	170,000	190,000	2.3E+06	1.4E+06	200,000	1,300	220,000	180,000	97,000	59,000	97,000	110,000	170,000	470,000	74,000	160,000	various			
Groundwater Contact Criteria	11,000	530,000	170,000	190,000	2.4E+06	220,000	11,000	200,000	150,000	37,000	19,000	37,000	21,000	12,000	86,000	6,400	160,000	various				
Flammability and Explosivity Screening Level	34,000	31,000	22,000	35,000	190,000	ID	120,000	22,000	48,000	3.5E+06	ID	ID	1.3E+06	ID	1.8E+06	ID	79,000	NA	NA	various		
Groundwater Acute Inhalation Screening Level	67,000	ID	170,000	190,000	ID	ID	ID	140,000	270,000	ID	1.1E+06	ID	1.1E+06	ID	200,000	ID	ID	1.6E+05	various			

Notes and Abbreviations:

- Bold:** Indicates results greater than Michigan DEQ Generic Cleanup Criteria.
- ID: Inadequate data to develop criterion
- MRL: Method Reporting Limit
- {A}: Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, Act No. 399 of the Public Acts of 1976
- {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 ug/l.

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
8-1	1.0	Unit 1: Fill (Silty Sands and Clays) Background	6,900	74,000	<2000	6,500	16,000	21,000	<100	16,000	<500	<1,000	81,000	<500
8-2	3.0	Unit 2: Upper Silty Sandy Clays Background	5,900	30,000	<2,000	<5,000	19,000	18,000	<100	15,000	<500	<1,000	130,000	<500
8-3	5.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	21,000	<2,000	<5,000	8,300	8,700	<1,000	11,000	<500	<1,000	28,000	<500
8-4A	7.0		<5,000	65,000	<2,000	7,000	8,800	13,000	<1,000	16,000	<500	<1,000	39,000	<500
8-4B	7.0		<5,000	65,000	<2,000	<5,000	8,100	12,000	<1,000	13,000	<500	<1,000	24,000	<500
1-1	2.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	<5,000	32,000	<2,000	5,000	6,300	8,800	<100	<1,000	<500	<1,000	42,000	<500
1-2	4.0		6,200	39,000	<2,000	11,000	12,000	13,000	<100	23,000	<500	<1,000	52,000	<500
1-3	6.0		<5,000	56,000	<2,000	6,200	31,000	24,000	<100	19,000	<500	<1,000	180,000	<500
1-4	8.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	5,800	30,000	<2,000	<5,000	13,000	13,000	<1,000	19,000	<500	<1,000	55,000	<500
1-5	1.0		6,400	50,000	<2,000	<5,000	13,000	12,000	<1,000	25,000	<500	<1,000	39,000	<500
1-6	16.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	40,000	<2,000	<5,000	4,000	6,800	<1,000	<10,000	<500	<1,000	13,000	<500
2-2	3.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	9,000	<2000	<5,000	84,000	12,000	<100	<10,000	<500	<100	31,000	<500
2-3	5.6	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	5,000	31,000	<2,000	6,300	11,000	16,000	<100	18,000	<500	<1,000	45,000	<500
2-4A	7.0		<5,000	17,000	<2,000	5,900	10,000	13,000	<100	16,000	<500	<1,000	34,000	<500
2-4B	7.6	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	16,000	<2,000	<5,000	3,500	6,000	<1,000	<10,000	<500	<1,000	13,000	<500
2-5	10.6		<5,000	60,000	<2,000	5,300	8,000	10,000	<1,000	16,000	<500	<1,000	28,000	<500
2-6	13.6	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	46,000	<2,000	5,100	7,100	11,000	<1,000	11,000	<500	<1,000	28,000	<500
2-7	15.6		<5,000	46,000	<2,000	5,100	7,100	11,000	<1,000	11,000	<500	<1,000	28,000	<500
3-2	3.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	36,000	< 2,000	<5,000	8,000	9,300	<100	<10,000	<500	<100	110,000	<500
3-3	5.6	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	<5,000	40,000	<2,000	6,800	8,300	8,500	<100	15,000	<500	<1,000	53,000	<500
3-4	7.6		5,100	34,000	<2,000	7,100	13,000	8,600	<100	20,000	<500	<1,000	38,000	<500
3-5	10.6	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	17,000	<2,000	6,400	8,000	7,400	<1,000	12,000	<500	<1,000	41,000	<500
3-6	15.6	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,300	60,000	<2,000	5,600	9,500	11,000	<1,000	14,000	<500	<1,000	33,000	<500
4-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	510	50,000	<2000	5,000	4,000	22,000	<100	13,000	<500	<100	90,000	<500
4-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,500	58,000	<2,000	8,100	13,000	10,000	<100	19,000	<500	<1,000	50,000	<500
4-3	5.0		5,800	70,000	<2,000	5,000	17,000	13,000	<100	19,000	<500	<1,000	41,000	<500
4-4	7.0		5,700	46,000	<2,000	5,000	12,000	12,000	<100	19,000	<500	<1,000	38,000	<500
4-5	10.0		<5,000	42,000	<2,000	<5,000	12,000	15,000	<100	17,000	<500	<1,000	34,000	<500
4-6	15.0		6,000	60,000	<2,000	5,400	13,000	16,000	<100	20,000	<500	<1,000	35,000	<500
4-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	42,000	<2,000	<5,000	12,000	15,000	<1,000	17,000	<500	<1,000	34,000	<500
4-6	15.0		6,000	60,000	<2,000	5,400	13,000	16,000	<1,000	20,000	<500	<1,000	35,000	<500
5-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	<5,000	38,000	<2000	68,000	23,000	19,000	<100	11,000	<500	<100	95,000	<500
5-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,300	72,000	<2,000	8,700	13,000	11,000	<100	22,000	<500	<1,000	37,000	<500
5-3	5.0		6,000	18,000	<2,000	5,100	11,000	13,000	<100	17,000	<500	<1,000	34,000	<500

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
5-4	7.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	6,600	30,000	<2,000	5,500	12,000	13,000	<1,000	18,000	<500	<1,000	33,000	<500
5-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,700	10,000	<2,000	5,800	13,000	16,000	<1,000	22,000	<500	<1,000	40,000	<500
5-6	15.0		6,000	32,000	<2,000	<5,000	12,000	15,000	<1,000	16,000	<500	<1,000	30,000	<500
6-1	1.6	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,700	74,000	<2000	68,000	66,000	27,000	<100	26,000	<500	<100	390,000	<500
6-2	3.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	7,400	91,000	<2,000	13,000	70,000	46,000	<100	33,000	<500	<1,000	660,000	<500
6-3	5.0		5,600	65,000	<2,000	11,000	6.1E+06	22,000	<100	20,000	<500	<1,000	110,000	<500
6-4	7.0		6,200	90,000	<2,000	7,200	48,000	26,000	<100	21,000	<500	<1,000	380,000	<500
6-5	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	6,300	39,000	<2,000	6,000	18,000	15,000	<1,000	16,000	<500	<1,000	74,000	<500
6-6	15.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	5,800	42,000	<2,000	6,600	13,000	14,000	<1,000	22,000	<500	<1,000	36,000	<500
7-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,000	48,000	<2000	16,000	59,000	44,000	<100	22,000	<500	150	920,000	<500
7-2	3.0		12,000	96,000	<2000	8,000	24,000	18,000	<100	13,000	<500	<100	250,000	<500
7-3	5.0	Unit 2: Upper Silty Sandy Clays <i>Foreground</i>	8,900	50,000	<2,000	9,600	15,000	13,000	<100	22,000	<500	<1,000	67,000	<500
7-4	7.0		9,000	52,000	<2,000	15,000	19,000	13,000	<100	35,000	<500	<1,000	45,000	<500
7-5	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Foreground</i>	<5,000	14,000	<2,000	<5,000	3,300	5,600	<1,000	<10,000	<500	<1,000	9,600	<500
7-6	15.0	Unit 4: Lower Silty Sandy Clays; <i>Foreground</i>	<5,000	40,000	<2,000	6,000	13,000	15,000	<1,000	21,000	<500	<1,000	35,000	<500
8-1	1.0	Unit 1: Fill (Silty Sands and	6,900	74,000	<2000	6,500	16,000	21,000	<100	16,000	<500	<1,000	81,000	<500
8-3	5.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	21,000	<2,000	<5,000	8,300	8,700	<1,000	11,000	<500	<1,000	28,000	<500
8-4A	7.0		<5,000	65,000	<2,000	7,000	8,800	13,000	<1,000	16,000	<500	<1,000	39,000	<500
8-4B	7.0		<5,000	65,000	<2,000	<5,000	8,100	12,000	<1,000	13,000	<500	<1,000	24,000	<500
8-5	10.0	Unit 4: Lower Silty Sandy Clays; <i>Background</i>	<5,000	130,000	<2,000	8,100	13,000	17,000	<1,000	24,000	<500	<1,000	39,000	<500
8-6	15.0		5,400	110,000	<2,000	5,300	12,000	18,000	<1,000	18,000	<500	<1,000	32,000	<500
C9-1	1.0	Unit 2: Upper Silty Sandy Clays <i>Background</i>	5,400	110,000	<2,000	5,300	12,000	18,000	<100	18,000	<500	<1,000	32,000	<500
C9-2	2.5		5,700	44,000	<2,000	6,000	20,000	30,000	<100	17,000	<500	<1,000	110,000	<500
9-2	3.0		<5,000	32,000	<2,000	<5,000	11,000	14,000	<100	17,000	<500	<1,000	88,000	<500
9-3	5.0		<5,000	29,000	<2,000	<5,000	16,000	13,000	<100	25,000	<500	<1,000	140,000	<500
9-4A	7.0		5,400	48,000	<2,000	7,800	21,000	15,000	<100	18,000	<500	<1,000	140,000	<500
9-5A	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	19,000	<2,000	<5,000	10,000	10,000	<1,000	13,000	<500	<1,000	47,000	<500
9-5B	10.0	Unit 4: Lower Silty Sandy Clays; <i>Background</i>	<5,000	16,000	<2,000	<5,000	12,000	14,000	<1,000	20,000	<500	<1,000	35,000	<500
9-6	15.0		6,100	34,000	<2,000	5,900	13,000	14,000	<1,000	24,000	<500	<1,000	38,000	<500
10-1	1.0	Unit 1: Fill (Silty Sands and Clays) <i>Foreground</i>	6,400	30,000	<2000	<5,000	19,000	21,000	<100	14,000	<500	<1,000	100,000	<500
10-2A	3.0	Unit 2: Upper Silty Sandy Clays <i>Background</i>	<5,000	27,000	<2,000	<5,000	4,600	5,600	<100	<10,000	<500	<1,000	21,000	<500
10-2B	3.0		<5,000	48,000	<2,000	7,900	10,000	8,200	<100	19,000	<500	<1,000	26,000	<500
10-4	7.0		5,900	54,000	<2,000	6,900	12,000	13,000	<100	20,000	<500	<1,000	37,000	<500
10-5A	10.0	Unit 3: Silty Sands Interbedded With Clay; <i>Background</i>	<5,000	24,000	<2,000	<5,000	5,200	6,900	<1,000	<10,000	<500	<1,000	15,000	<500
10-5B	10.0	Unit 4: Lower Silty Sandy Clays;	<5,000	46,000	<2,000	<5,000	9,900	13,000	<1,000	14,000	<500	<1,000	29,000	<500



TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: METALS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)											
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Total Cyanide
10-6	15.0	Background	5,200	22,000	<2,000	5,200	12,000	14,000	<1,000	20,000	<500	<1,000	40,000	<500
11-1	1.0	Unit 1: Fill (Silty Sands and Clays) Foreground	6,000	30,000	<2000	16,000	38,000	31,000	<100	19,000	<500	<100	28,000	<500
11-2	3.0	Unit 2: Upper Silty Sandy Clays Background	<5,000	41,000	<2,000	7,500	4,800	8,500	<100	12,000	<500	<1,000	72,000	<500
11-3	5.0		8,800	72,000	<2,000	10,000	16,000	15,000	<100	19,000	<500	<1,000	150,000	<500
11-4A	7.0		12,000	100,000	<2,000	9,000	15,000	9,600	<100	32,000	<500	<1,000	50,000	<500
11-4B	7.0	Unit 3: Silty Sands Interbedded With Clay; Background	<5,000	10,000	<2,000	<5,000	4,700	0	<1,000	<10,000	<500	<1,000	25,000	<500
11-5	10.0	Unit 4: Lower Silty Sandy Clays; Background	5,900	39,000	<2,000	5,900	12,000	14,000	<1,000	21,000	<500	<1,000	37,000	<500
11-6	15.0		7,200	44,000	<2,000	6,700	13,000	14,000	<1,000	24,000	<500	<1,000	36,000	<500
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)														
Soil: Residential and Commercial I														
Statewide Default Background Levels			5,800	75,000	1,200	18,000 total	32,000	21,000	130	20,000	410	1,000	47,000	390
Drinking Water Protection Criteria			23,000	1.3E+06	6,000	30,000	5.80E+06	700,000	1,700	100,000	4,000	4,500	2.4E+06	4,000 {P}
Groundwater Surface Water Interface Protection Criteria			70,000	{G}	{G}	3,300	{G}	{G}	100	{G}	400	500	{G}	400 {P}
Soil Protection Criteria for Surface Water Drinking Water Value			16,000	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria			2.0E+06	1.0E+09	2.3E+08	1.4E+08	1.0E+09	ID	47,000	1.0E+09	7.80E+07	2.0E+08	1.0E+09	250,000 {P}
Soil Volatilization to Indoor Air Inhalation Criteria			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 5 Meter Source Thickness			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Finite VSIC for 2 Meter Source Thickness			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Particulate Soil Inhalation Criteria			720,000	3.3E+08	1.7E+06	260,000	1.3E+08	1.0E+08	ID	1.3E+07	1.3E+08	6.7E+06	ID	250,000 {P}
Direct Contact Criteria			7,600	3.7E+07	550,000	2.5E+06	2.0E+07	400,000	160,000	4.0E+07	2.6E+06	2.5E+06	1.7E+08	12,000 {P}
Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)														
Particulate Soil Inhalation Criteria			910,000	1.5E+08	2.2E+06	240,000	5.9E+07	4.4E+07	ID	1.6E+07	5.9E+07	2.9E+06	ID	250,000 {P}
Direct Contact Criteria: Industrial and Commercial II			61,000	2.5E+08	4.1E+06	1.7E+07	1.4E+08	900,000 draft	1.1E+06	2.7E+08	1.8E+07	1.7E+07	1.0E+09	250,000 {P}
Direct Contact Criteria: Commercial III			90,000	2.9E+08	4.2E+06	2.0E+07	1.6E+08	400,000	1.2E+06	3.1E+08	2.1E+07	1.9E+07	1.0E+09	250,000 {P}
Direct Contact Criteria: Commercial IV			74,000	2.7E+08	4.1E+06	1.8E+07	1.5E+08	400,000	1.2E+06	2.9E+08	1.9E+07	1.8E+07	1.0E+09	250,000 {P}
Site Specific Background Level (mean+3 standard deviations)			-	-	-	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:

- Bold:** Indicates result above Michigan Generic Cleanup Criteria. Does not consider background levels.
- ID: Inadequate data to develop criterion
- NLV: Chemical is not likely to volatilize under most conditions
- {1}: Using Chromium VI Criteria except surface water drinking water value (Cr III)
- {G}: GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.
- {P}: Amenable or Method OIA-1677 analysis are used to quantify cyanide concentrations for compliance with all groundwater criteria.

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
1-1	2.0	Foreground Soils	ND	820	150	630	ND	ND	ND	ND	ND	ND	ND
1-2	4.0		ND	340	90	450	ND	ND	ND	ND	ND	ND	ND
1-3	6.0		ND	790	150	1,230	ND	ND	ND	ND	ND	ND	ND
1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-5	11.0	Foreground Soils; upper saturated zone	ND	440	80	610	ND	ND	ND	ND	ND	ND	ND
1-6	16.0		ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND
2-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-3	5.6		ND	ND	ND	ND	3,000	ND	ND	ND	ND	ND	ND
2-4A	7.0		ND	ND	ND	ND	2,300	280	ND	ND	ND	ND	ND
2-4B	7.6	Foreground Soils; upper saturated zone	ND	2,600	90	1,180	7,600	9,600	ND	720	ND	ND	ND
2-5	10.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-6	13.6		ND	170	ND	ND	1,000	ND	ND	200	ND	ND	ND
2-7	15.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-2	3.6	Foreground Soils	ND	ND	ND	ND	640	ND	ND	ND	ND	ND	ND
3-3	5.6		ND	ND	ND	ND	1,300	ND	ND	ND	ND	ND	ND
3-4	7.6		ND	ND	ND	ND	940	ND	ND	ND	ND	ND	ND
3-5	10.6	Foreground Soils; upper saturated zone	ND	ND	ND	ND	1,500	ND	ND	ND	ND	ND	ND
3-6	15.6		ND	ND	ND	ND	9,300	660	ND	ND	160	ND	ND
4-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	130	130	ND	ND	11,000	ND	ND
4-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	12,000	ND	ND
5-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
6-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	2,200	ND	ND
6-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-4	7.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-5	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I0-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I1-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-1	2.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-3	5.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-1	2.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-4	8.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-4	8.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-4	8.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-5	13.0		ND	ND	100	330	ND	ND	630	ND	ND	ND	ND
OW5-1	1.6	Foreground Soils	ND	4,100	3,000	25,700	31,000	ND	ND	ND	510	ND	ND
OW5-2	3.6		ND	1,300	4,000	3,400	ND	ND	ND	ND	ND	ND	ND
OW5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
OW5-4	8.0	Foreground Soils;Upper Sat Zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-2	3.6		ND	80	ND	ND	ND	ND	ND	ND	200	ND	ND
OW6-3	5.0	Foreground Soils; upper saturated zone	ND	100	ND	ND	390	ND	ND	ND	ND	ND	ND
OW6-4	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)										
			Soil: Residential and Commercial I										
Drinking Water Protection Criteria			100	16,000	1,500	5,600	4,000	18,000	1,400	100	100	100	various
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700	4000	ID	ID	900	4,000	19000	various
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	220	580	940	various
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000	250,000	230,000	23,000	11,000	7,100	45,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2.8E+06	9.5E+06	4.6E+07	3.8E+06	2.1E+06	180,000	180,000	78,000	210,000	various
Finite VSIC for 5 Meter Source Thickness			34,000	5.1E+06	1.4E+07	6.1E+07	1.2E+07	5.9E+06	420,000	480,000	170,000	590,000	various
Finite VSIC for 2 Meter Source Thickness			79,000	1.2E+07	3.0E+07	1.3E+08	28,000,000	1.4E+07	990,000	1.1E+06	28,000,000	1.4E+06	various
Particulate Soil Inhalation Criteria			3.8E+08	2.7E+10	6.7E+10	2.9E+11	6.7E+10	3.3E+10	2.3E+09	5.4E+09	6.7E+10	6.6E+09	various
Direct Contact Criteria			180,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	460,000	1.3E+06	various
			Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)										
Industrial and Commercial Drinking Water Criteria			100	16,000	1500	5600	4,000	50,000	1,400	100	100	100	various
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000	460,000	430,000	42,000	60,000	37,000	240,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3.3E+06	1.1E+07	5.4E+07	4.5E+06	2.5E+06	210,000	60,000	260,000	700,000	various
Finite VSIC for 5 Meter Source Thickness			99,000	3.6E+07	1.4E+07	6.5E+07	1.5E+07	6.0E+06	430,000	1.4E+06	440,000	1.7E+06	various
Finite VSIC for 2 Meter Source Thickness			230,000	3.6E+07	3.0E+07	1.3E+08	3.1E+07	1.4E+07	1.0E+06	3.3E+06	1.1E+06	4.0E+06	various
Particulate Soil Inhalation Criteria			4.7E+08	1.2E+10	2.9E+10	1.3E+11	2.9E+10	1.5E+10	1.0E+09	6.8E+09	2.3E+09	8.3E+09	various
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various

Notes and Abbreviations:

1. See Figure K1 for sampling locations.
2. **Bold** and Shaded: Indicates result is greater than Michigan DEQ Generic Cleanup Criteria.

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
1-1	2.0	Foreground Soils	ND	820	150	630	ND	ND	ND	ND	ND	ND	ND
1-2	4.0		ND	340	90	450	ND	ND	ND	ND	ND	ND	ND
1-3	6.0		ND	790	150	1,230	ND	ND	ND	ND	ND	ND	ND
1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-5	11.0	Foreground Soils; upper saturated zone	ND	440	80	610	ND	ND	ND	ND	ND	ND	ND
1-6	16.0		ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND
2-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-3	5.6		ND	ND	ND	ND	3,000	ND	ND	ND	ND	ND	ND
2-4A	7.0		ND	ND	ND	ND	2,300	280	ND	ND	ND	ND	ND
2-4B	7.6	Foreground Soils; upper saturated zone	ND	2,600	90	1,180	7,600	9,600	ND	720	ND	ND	ND
2-5	10.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-6	13.6		ND	170	ND	ND	1,000	ND	ND	200	ND	ND	ND
2-7	15.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-2	3.6	Foreground Soils	ND	ND	ND	ND	640	ND	ND	ND	ND	ND	ND
3-3	5.6		ND	ND	ND	ND	1,300	ND	ND	ND	ND	ND	ND
3-4	7.6		ND	ND	ND	ND	940	ND	ND	ND	ND	ND	ND
3-5	10.6	Foreground Soils; upper saturated zone	ND	ND	ND	ND	1,500	ND	ND	ND	ND	ND	ND
3-6	15.6		ND	ND	ND	ND	9,300	660	ND	ND	160	ND	ND
4-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	130	130	ND	ND	11,000	ND	ND
4-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	12,000	ND	ND
5-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-4	7.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
6-5	10.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	2,200	ND	ND
6-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-4	7.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-5	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-6	15.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8-1	1.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I0-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
I1-1	1.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-1	2.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-3	5.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW1-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-1	2.0	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-2	3.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-4	8.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW2-5	12.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-1	1.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-2	3.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW3-5	12.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-1	1.6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-2	3.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-3	5.0	Foreground Soils; upper saturated zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-4	8.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW4-5	13.0		ND	ND	100	330	ND	ND	630	ND	ND	ND	ND
OW5-1	1.6	Foreground Soils	ND	4,100	3,000	25,700	31,000	ND	ND	ND	510	ND	ND
OW5-2	3.6		ND	1,300	4,000	3,400	ND	ND	ND	ND	ND	ND	ND
OW5-3	5.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE K1  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
SOIL: VOLATILE ORGANIC COMPOUDS

Sample Identification	Sample Depth (feet below ground level)	Sample Description	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)										
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-Trichloro-ethane	1,1-Dichloroethane	1,2-Di-chloroethene	Tetrachloro-ethylene	Trichloro-ethylene	Methylene Chloride	Remaining VOCs
OW5-4	8.0	Foreground Soils;Upper Sat Zone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-1	1.6	Foreground Soils	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OW6-2	3.6		ND	80	ND	ND	ND	ND	ND	ND	200	ND	ND
OW6-3	5.0	Foreground Soils; upper saturated zone	ND	100	ND	ND	390	ND	ND	ND	ND	ND	ND
OW6-4	10.0		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)										
			Soil: Residential and Commercial I										
Drinking Water Protection Criteria			100	16,000	1,500	5,600	4,000	18,000	1,400	100	100	100	various
Groundwater/Surface Water Interface Protection Criteria			4,000	2,800	360	700	4000	ID	ID	900	4,000	19000	various
Soil Protection Criteria for Surface Water Drinking Water Value			240	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable	220	580	940	various
Groundwater Contact Protection Criteria			220,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Soil Volatilization to Indoor Air Inhalation Criteria			1,600	250,000	140,000	150,000	250,000	230,000	23,000	11,000	7,100	45,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			13,000	2.8E+06	9.5E+06	4.6E+07	3.8E+06	2.1E+06	180,000	180,000	78,000	210,000	various
Finite VSIC for 5 Meter Source Thickness			34,000	5.1E+06	1.4E+07	6.1E+07	1.2E+07	5.9E+06	420,000	480,000	170,000	590,000	various
Finite VSIC for 2 Meter Source Thickness			79,000	1.2E+07	3.0E+07	1.3E+08	28,000,000	1.4E+07	990,000	1.1E+06	28,000,000	1.4E+06	various
Particulate Soil Inhalation Criteria			3.8E+08	2.7E+10	6.7E+10	2.9E+11	6.7E+10	3.3E+10	2.3E+09	5.4E+09	6.7E+10	6.6E+09	various
Direct Contact Criteria			180,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	460,000	1.3E+06	various
			Soil: Industrial and Commercial II, III, and IV (if different from residential criteria above)										
Industrial and Commercial Drinking Water Criteria			100	16,000	1500	5600	4,000	50,000	1,400	100	100	100	various
Soil Volatilization to Indoor Air Inhalation Criteria			8,400	250,000	140,000	150,000	460,000	430,000	42,000	60,000	37,000	240,000	various
Infinite Source Volatile Soil Inhalation Criteria (VSIC)			45,000	3.3E+06	1.1E+07	5.4E+07	4.5E+06	2.5E+06	210,000	60,000	260,000	700,000	various
Finite VSIC for 5 Meter Source Thickness			99,000	3.6E+07	1.4E+07	6.5E+07	1.5E+07	6.0E+06	430,000	1.4E+06	440,000	1.7E+06	various
Finite VSIC for 2 Meter Source Thickness			230,000	3.6E+07	3.0E+07	1.3E+08	3.1E+07	1.4E+07	1.0E+06	3.3E+06	1.1E+06	4.0E+06	various
Particulate Soil Inhalation Criteria			4.7E+08	1.2E+10	2.9E+10	1.3E+11	2.9E+10	1.5E+10	1.0E+09	6.8E+09	2.3E+09	8.3E+09	various
Direct Contact Criteria: Industrial and Commercial II			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial III			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various
Direct Contact Criteria: Commercial IV			400,000	250,000	140,000	150,000	460,000	890,000	640,000	88,000	500,000	2.3E+06	various

Notes and Abbreviations:

1. See Figure K1 for sampling locations.
2. **Bold** and Shaded: Indicates result is greater than Michigan DEQ Generic Cleanup Criteria.

**TABLE K2**  
**AOI 26 - CONTAINER STORAGE AREA**  
**LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE STORAGE AREA CLOSURE INVESTIATION (1989-1991)**  
**WATER: METALS (DISSOLVED)**

Sample Identification	Sample Date	Sample Description	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level									
			Arsenic	Barium	Cadmium	Chromium{1}	Copper	Lead	Mercury	Selenium	Silver	Zinc
OW-1	6/20/1990	Upper Saturated Unit	6	12	<10	6	9	<5	<.04	<5	3	7
OW-1	7/5/1990		5	10	<10	5	3	<5	<.04	<5	<1	3
OW-2	6/20/1990		15	230	10	5	12	<5	<.04	<5	13	11
OW-2	7/5/1990		13	28	<10	9	8	6	<.04	6	2	18
OW-3	6/20/1990		29	340	10	10	20	800	<.04	800	17	23
OW-3	7/5/1990		27	39	<10	11	11	12	<.04	12	2	27
OW-4	6/20/1990		20	230	<10	9	18	6	<.04	6	12	18
OW-4	7/5/1990		16	23	<10	7	6	<5	<.04	<5	<1	18
OW-5	6/20/1990		8	340	<10	4	11	<5	<.04	<5	10	600
OW-5	7/5/1990		<5	35	<10	2	3	<5	<.04	<5	1	3
OW-6	6/20/1990		39	470	10	17	30	15	<.04	15	23	33
OW-6	7/5/1990		29	37	<10	12	10	10	<.04	10	1	23
TB	7/5/1990	<5	<10	<10	2	1	<5	<.04	<5	<1	<1	
FB1	7/5/1990	<5	<10	<10	<2	1	<5	<.04	<5	<1	<1	
OW-7	5/20/1991	Lower Saturated Unit	2	12	12	<2	1	<5	<.02	<.5	1	<1
OW-11	5/20/1991		<.5	<10	<10	<2	1	5	<.02	<.5	1	1
OW-12	5/20/1991		1	<10	<10	<2	1	<5	<.02	<.5	1	<1
OW-13	5/20/1991		<.5	<10	<10	<2	2	<5	<.02	<.5	1	<1
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)												
Groundwater: Residential and Industrial-Commercial												
Residential & Commercial I Drinking Water Criteria			50	2,000	5	100	1,000	4	2	50	34	2,400
Industrial & Commercial II, III, IV, Drinking Water Criteria			50	2,000	5	100	1,000	4	2	50	98	5,000
Groundwater Surface Water Interface Criteria			150	{G}	{G}	11	{G}	{G}	0.0013	5	0.2	{G}
Surface Water Drinking Water Value			50	1,900	2.5	not applicable	not applicable	14	not applicable	not applicable	not applicable	not applicable
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.			NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV
Groundwater Contact Criteria			4,300	1.4E+07	190,000	460,000	7.4E+06	ID	56	970,000	1.5E+06	1.1E+08
Flammability and Explosivity Screening Level			ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Groundwater Acute Inhalation Screening Level			ID	ID	ID	ID	ID	ID	ID	ID	ID	ID

**Notes and Abbreviations:**

1. **Bold:** Indicates results greater than Michigan DEQ Generic Cleanup Criteria.
2. ID: Inadequate data to develop criterion
3. NLV: Chemical is not likely to volatilize under most conditions
4. {1}: Chromium VI MDEQ Criteria Shown except for surface water drinking water criteria (Cr III)
5. {G}: GSI value is pH or water hardness dependent. The criteria is the lesser of the calculated final chronic value (FCV), wildlife value (WV), and human non-drinking water value (HNDV). Refer to MDEQ Part 201 Operational Memorandum #18.



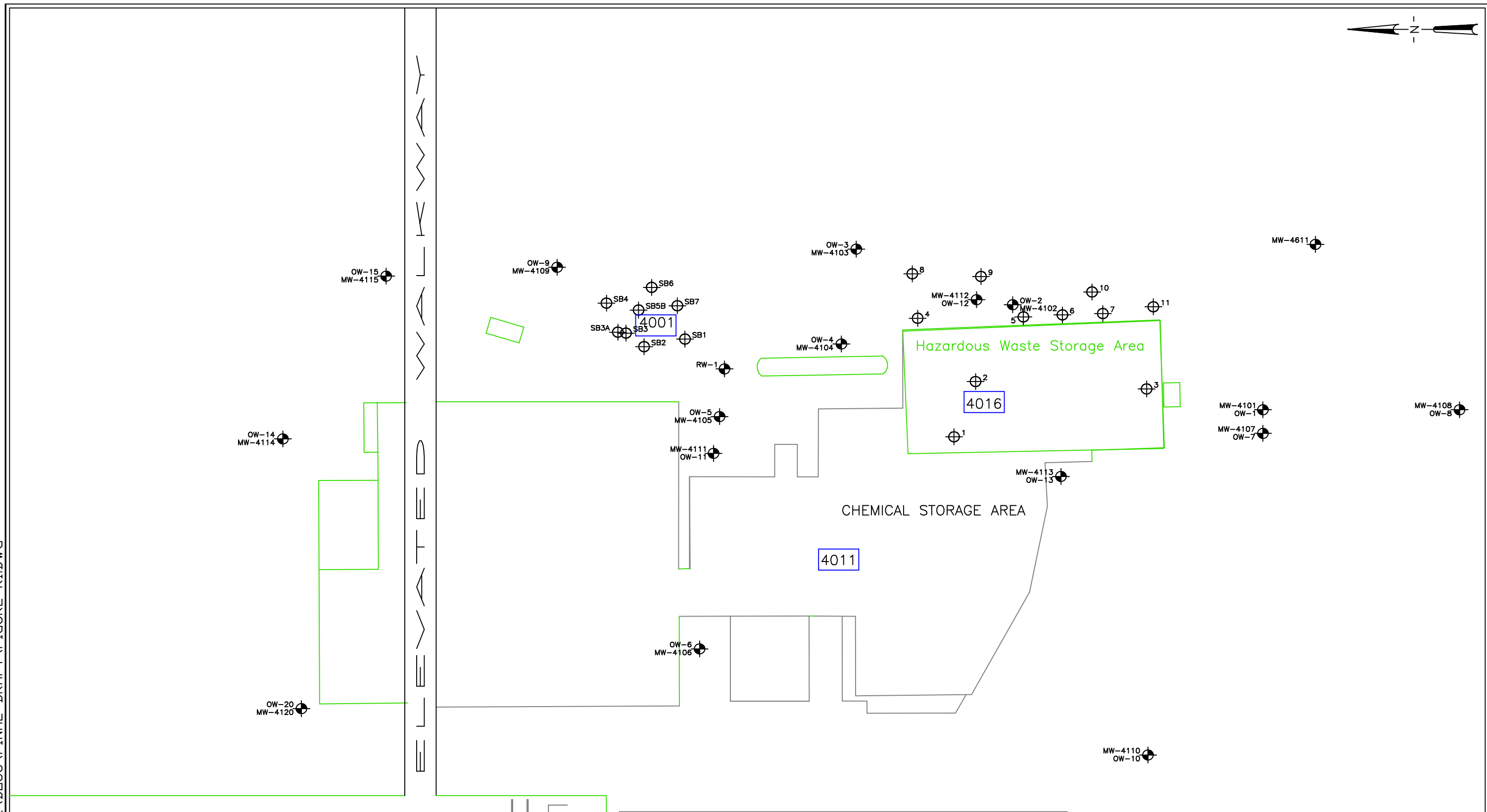
TABLE K2  
AOI 26 - CONTAINER STORAGE AREA  
LABORATORY ANALYSIS RESULTS - HAZARDOUS WASTE AREA CLOSURE INVESTIGATION (1989-1991)  
WATER: VOLATILE ORGANIC COMPOUNDS

Sample Identification	Sample Date	Sample Description	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level																			
			Benzene	Toluene	Ethylbenzene	Xylenes	1,1-Dichloroethane	Methylene Chloride	trans -1,2-Dichloroethene	1,1-Dichloroethene	cis -1,2-Dichloroethene	Chloroform	1,1,1-Tri chlorethane	1,2-Di chloroethane	Trichloroethene	1,1,2-Tri chloroethane	Tetra chloroethene	Chloro benzene	1,4-Dichloro benzene	1,2-Dichloro benzene	Remaining VOCs	
OW-1	06/20/90	Upper Saturated Unit	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-1	07/05/90		ND	ND	ND	ND	ND	ND	ND	12	ND	46	ND	ND	5	ND	ND	ND	ND	ND		
OW-1	09/07/90		ND	ND	ND	ND	290	ND	ND	75	270	ND	ND	ND	6.8	ND	ND	ND	ND	ND		
OW-1	03/26/91		ND	ND	ND	ND	ND	ND	ND	37	97	ND	ND	ND	4.5	ND	ND	ND	ND	ND		
OW-2	06/20/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-2	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-2	09/07/90		ND	ND	ND	ND	ND	ND	ND	120	93	ND	16	ND	190	ND	3.1	ND	ND	ND		
OW-2	03/26/91		ND	ND	ND	ND	ND	ND	ND	84	37	ND	13	ND	170	ND	1.7	ND	ND	ND		
OW-3	06/20/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-3	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND	ND	ND		
OW-3	09/07/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-3	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-4	06/20/90		ND	100	83	310	ND	ND	ND	ND	ND	6.9	ND	ND	ND	ND	ND	ND	ND	ND		
OW-4	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	ND		
OW-4	09/07/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45	ND	1	ND	ND	ND	ND	ND		
OW-4	03/26/91		8.8	46	8	32	88	30	ND	2,200	200	ND	11,000	4.8	37	ND	ND	ND	ND	ND		
OW-5	06/20/90		2.5	95	75	310	ND	ND	ND	ND	ND	74	ND	ND	ND	ND	ND	ND	ND	ND		
OW-5	07/05/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-5	09/07/90		ND	ND	ND	ND	420	ND	ND	260	ND	ND	2,800	ND	1,200	ND	ND	ND	ND	ND		
OW-5	03/26/91		ND	ND	ND	9.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-6	06/20/90		ND	ND	ND	ND	ND	5,000	ND	ND	ND	670	ND	ND	1,100	ND	ND	ND	ND	ND		
OW-6	07/05/90		ND	ND	ND	ND	ND	ND	ND	62	ND	63	ND	ND	300	ND	ND	ND	ND	ND		
OW-6	09/07/90		ND	ND	ND	ND	6.7	ND	ND	ND	ND	ND	170	ND	460	ND	ND	ND	ND	ND		
OW-6	03/26/91		ND	9.2	5.9	10.1	1,100	10	35	440	440	23	7,500	ND	3,400	ND	ND	ND	ND	ND		
OW-8	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
OW-8 Duplicate	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	50	ND	7.9	17	4.8	ND	ND	ND	ND		
OW-8	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	81	ND	0.8	9.1	4.3	ND	ND	ND	ND	ND		
OW-8 Duplicate	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	88	ND	1.4	11	4.6	ND	ND	ND	ND	ND		
OW-9	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	32	ND	1.6	4.9	ND	ND	ND	ND	ND	ND		
OW-9	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND		
OW-10	10/04/90		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	43	ND	ND	ND	ND	ND		
OW-10	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-7	10/04/90	Lower Saturated Unit	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-7	03/26/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-7	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-11	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-12	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-12 Duplicate	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
OW-13	05/20/91		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
MW-4611	05/03/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
MW-4611 Duplicate	05/03/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Trip Blanks	07/05/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Trip Blanks	10/04/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Trip Blanks	03/25/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Trip Blanks	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Trip Blanks	05/20/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Field Blanks	10/04/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Field Blanks	03/25/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Field Blanks	03/26/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Field Blanks	07/05/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Field Blanks	05/20/91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)																						
Groundwater: Residential and Industrial-Commercial																						
Residential & Commercial I Drinking Water Criteria	5	790	74	280	880	5.0 {A}	100	7.0 {A}	70	100 {A,W}	5.0 {A}	5.0 {A}	5	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	various		
Industrial & Commercial II, III, IV, Drinking Water Criteria	5	790	74	280	2,500	5.0 {A}	100	7.0 {A}	70	100 {A,W}	5.0 {A}	5.0 {A}	5	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	5.0 {A}	various		
Groundwater Surface Water Interface Criteria	200	140	18	35	ID	940	ID	65	ID	170	200	360	200	330 {X}	45 {X}	47	13	13	various			
Surface Water Drinking Water Value	12	not applicable	not applicable	not applicable	not applicable	47	not applicable	24	not applicable	77	29	6	29	12	11	not applicable	not applicable	not applicable	various			
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria	5,600	530,000	170,000	190,000	1.0E+06	220,000	85,000	200	96,000	28,000	15,000	9,600	15,000	17,000	25,000	210,000	16,000	160,000	various			
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.	36,000	530,000	170,000	190,000	2.3E+06	1.4E+06	200,000	1,300	220,000	180,000	97,000	59,000	97,000	110,000	170,000	470,000	74,000	160,000	various			
Groundwater Contact Criteria	11,000	530,000	170,000	190,000	2.4E+06	220,000	11,000	200,000	150,000	37,000	19,000	37,000	21,000	12,000	86,000	6,400	160,000	various				
Flammability and Explosivity Screening Level	34,000	31,000	22,000	35,000	190,000	ID	120,000	48,000	3.5E+06	ID	ID	1.3E+06	ID	1.8E+06	ID	79,000	NA	NA	various			
Groundwater Acute Inhalation Screening Level	67,000	ID	170,000	190,000	ID	ID	ID	140,000	270,000	ID	1.1E+06	ID	1.1E+06	ID	200,000	ID	ID	1.6E+05	various			

Notes and Abbreviations:

- Bold:** Indicates results greater than Michigan DEQ Generic Cleanup Criteria.
- ID: Inadequate data to develop criterion
- MRL: Method Reporting Limit
- {A}: Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, Act No. 399 of the Public Acts of 1976
- {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 ug/l.

FILE NO: G:\49017\001\DOCC\FINAL DRAFT\FIGURE K1.DWG



- LEGEND:
- MW-4120 OW-20 MONITORING WELL LOCATION
  - SB4 SOIL SAMPLE OR BORING LOCATION
  - 4011 FORMER UST

- NOTES:
1. BASE PLAN PROVIDED BY DELPHI CORPORATION
  2. MONITORING WELL AND SOIL BORING LOCATIONS ARE APPROXIMATE.



DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

AOI 26 - CONTAINER STORAGE AREA

SCALE: 1 INCH = 500 FEET

AUGUST 2002

FIGURE K1

## **APPENDIX L**

### **AOI 31 - Previous Sampling Results for the Former Diesel UST**

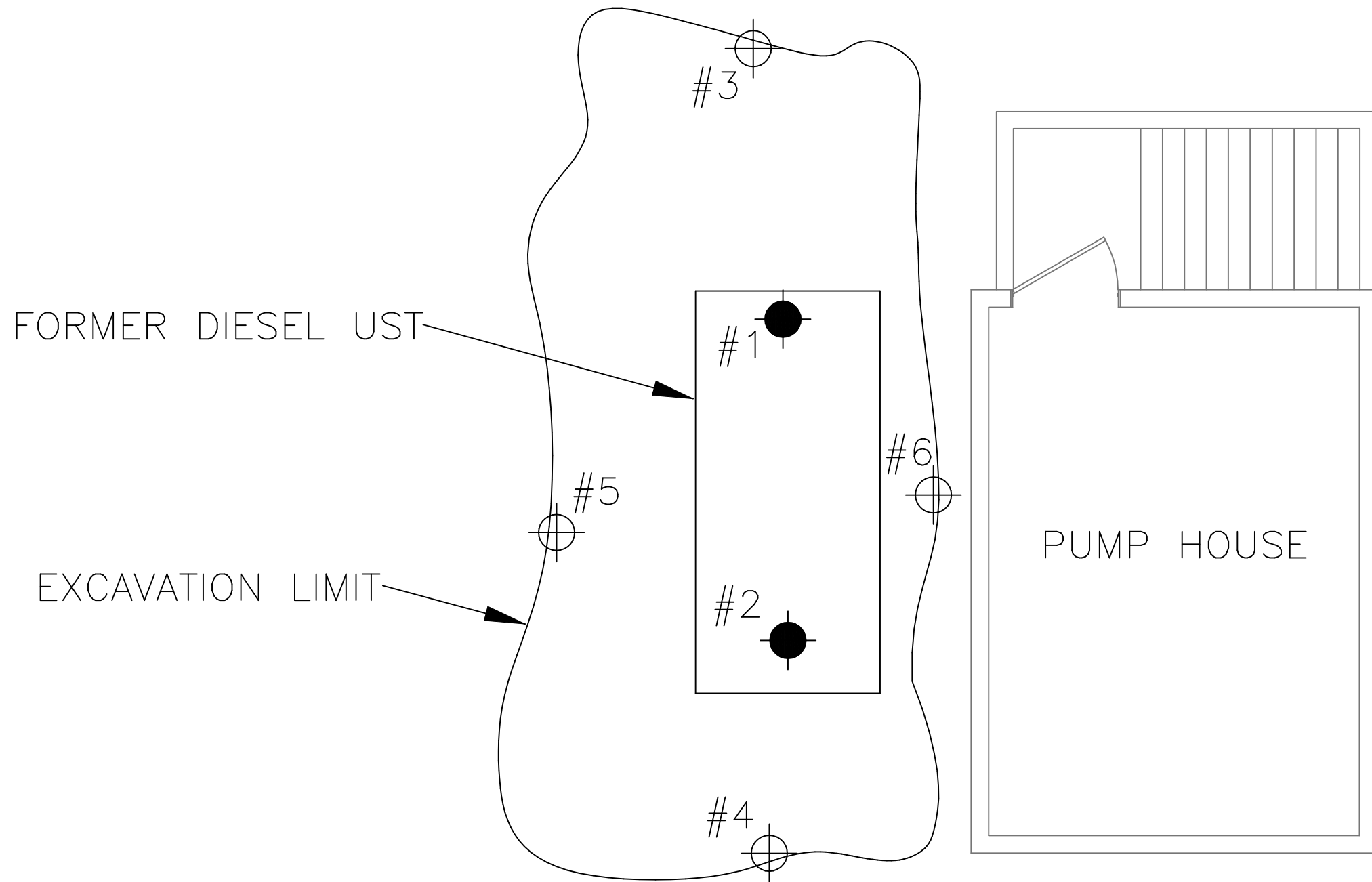
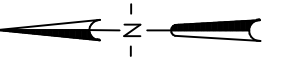
**TABLE L1**  
**AOI 31 - FORMER DIESEL UST**  
**LABORATORY ANALYSIS RESULTS**  
**SOIL: AROMATIC VOLATILE ORGANIC COMPOUNDS**

Sample Identification	Sample Date	Concentrations (µg/kg) Reported Above Minimum Reporting Limit/Minimum Quantitation Level (dry weight)			
		Benzene	Toluene	Ethylbenzene	Xylenes
#1 Diesel fuel tank	12/01/89	<10	<10	18	22
#2 Diesel fuel tank	12/01/89	<10	<10	<10	<10
#3 Diesel fuel tank	12/01/89	<10	<10	<10	<10
#4 Diesel fuel tank	12/01/89	<10	<10	<10	<10
#5 Diesel fuel tank	12/01/89	<10	<10	<10	<10
#6 Diesel fuel tank	12/01/89	<10	<10	11	<10
<b>ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)</b>					
<b>Soil: Residential and Commercial I</b>					
Drinking Water Protection Criteria		100	16,000	1,500	5,600
Groundwater/Surface Water Interface Protection Criteria		4,000	2,800	360	700
Soil Protection Criteria for Surface Water Drinking Water Value		240	not applicable	not applicable	not applicable
Groundwater Contact Protection Criteria		220,000	250,000	140,000	150,000
Soil Volatilization to Indoor Air Inhalation Criteria		1,600	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		13,000	2.8E+06	9.5E+06	4.6E+07
Finite VSIC for 5 Meter Source Thickness		34,000	5.1E+06	1.4E+07	6.1E+07
Finite VSIC for 2 Meter Source Thickness		79,000	1.2E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria		3.8E+08	2.7E+10	6.7E+10	2.9E+11
Direct Contact Criteria		180,000	250,000	140,000	150,000
<b>Soil: Industrial and Commercial II, III, and IV</b>					
Industrial and Commercial Drinking Water Criteria		100	16,000	1500	5600
Soil Volatilization to Indoor Air Inhalation Criteria		8,400	250,000	140,000	150,000
Infinite Source Volatile Soil Inhalation Criteria (VSIC)		45,000	3.3E+06	1.1E+07	5.4E+07
Finite VSIC for 5 Meter Source Thickness		99,000	3.6E+07	1.4E+07	6.5E+07
Finite VSIC for 2 Meter Source Thickness		230,000	3.6E+07	3.0E+07	1.3E+08
Particulate Soil Inhalation Criteria		4.7E+08	1.2E+10	2.9E+10	1.3E+11
Direct Contact Criteria: Industrial and Commercial II		400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial III		400,000	250,000	140,000	150,000
Direct Contact Criteria: Commercial IV		400,000	250,000	140,000	150,000



**Notes and Abbreviations:**

1. See Figure L1 for sample locations.

FILE NO: G:\49017\001\DOCC\FINAL DRAFT\FIGURE L1.DWG



LEGEND:

- #2  BOTTOM SOIL SAMPLING LOCATION
- #4  WALL SOIL SAMPLING LOCATION

NOTES:

1. BASE PLAN PROVIDED BY DELPHI CORPORATION
2. SAMPLING LOCATIONS ARE APPROXIMATE



DELPHI ENERGY AND CHASSIS SYSTEMS  
PLANT 400 – 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

AOI 31 – FORMER DIESEL UST

SCALE: 1 INCH = 5 FEET

AUGUST 2002

**APPENDIX M**

**AOI-37 – MDEQ Tank Closure Approval Letter**



JOHN ENGLER, Governor

**DEPARTMENT OF ENVIRONMENTAL QUALITY**

*"Better Service for a Better Environment"*

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: [www.deq.state.mi.us](http://www.deq.state.mi.us)

RUSSELL J. HARDING, Director

REPLY TO

WASTE MANAGEMENT DIVISION  
PO BOX 30241  
LANSING MI 48909-7741

June 16, 1998

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Bill Schroeck  
Environmental Operations  
DELPHI E Flint, East Division  
1300 North Dort Highway  
Flint, Michigan 48556

Dear Mr. Schroeck:

SUBJECT: Closure Certification Report for Former Generator Underground Storage Tank,  
GM DELPHI Dort Highway Complex, Flint, Genesee County: MID 005 356 647

The Department of Environmental Quality (DEQ), Waste Management Division (WMD), has reviewed the subject report for the subject facility, received January 22, 1998. Based on this review, the report is acceptable under Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). It is the WMD's understanding that this tank will no longer be used to manage hazardous waste.

If you have questions regarding this letter, please contact Mr. Dan Dailey of the Hazardous Waste Program Section, at 517-335-6610.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Sygo".

Jim Sygo, Chief ~~ACTING~~  
Waste Management Division  
517-373-9523

cc: Mr. Steve Buda, DEQ  
Ms. Elizabeth Browne/Mr. Bill Yocum, DEQ-Shiawassee  
Mr. Steve Sliver/HWP/C&E File, DEQ  
Mr. Al Taylor/Ms. Jan Sealock, DEQ  
Mr. Dan Dailey, DEQ

## **APPENDIX N**

### **AOI-48 – Previous Sampling Results for Groundwater**



TABLE N1  
SUMMARY OF LABORATORY ANALYSIS RESULTS, PERIMETER GROUNDWATER STUDY (OCTOBER 2000)  
WATER: AROMATIC VOLATILE ORGANIC COMPOUNDS  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

Sample Identification	Sample Depth (feet below ground level)	Sample Collection Date	Concentrations (µg/L) Reported Above Minimum Reporting Limit/Minimum Quantitation Level							
			1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethylene	Trichloro-ethylene	1,1,1-Trichloro-ethane	Vinyl Chloride	30 Remaining VOCs
MW-4003	7-12	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4004	7.5-12.5	03/17/2000	<MRL/MQL	3.8	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4103	7-12	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4115	4-9	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	23	<MRL/MQL	<MRL/MQL	<MRL
MW-4117	5-10	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4406	9-14	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
Dup (MW-4406)	9-14	03/17/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4502	4-9	03/17/2000	410	<MRL/MQL	290	<MRL/MQL	<MRL/MQL	3,100	<MRL/MQL	<MRL
MW-4601	6.5-11.5	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4602	6.5-11.5	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4603	14-19	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4604	15-20	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	2,200	<MRL/MQL	<MRL/MQL	<MRL
MW-4605	15-20	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	5.2	<MRL/MQL	<MRL/MQL	<MRL
MW-4606	7.5-12.5	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4607	9-14	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
Dup (MW-4607)	9-14	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4608	7.5-12.5	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4609	7.5-12.5	05/02/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4610	19-24	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	5.0	<MRL/MQL	<MRL/MQL	83	<MRL
MW-4611	6-11	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
Dup (MW-4611)	6-11	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4612	12-17	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4613	8.5-13.5	Well Dry	-	-	-	-	-	-	-	-
MW-4614	9-14	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
MW-4615	19-24	05/03/2000	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL/MQL	<MRL
ACT 451, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (June 7, 2000)										
Groundwater: Residential and Industrial-Commercial										
Residential & Commercial I Drinking Water Criteria			880	5	7	70	5	200	2	various
Industrial & Commercial II, III, IV, Drinking Water Criteria			2,500	5	7	70	5	200	2	various
Groundwater Surface Water Interface Criteria			ID	360	65	ID	200	200	15	various
Surface Water Drinking Water Value			not applicable	6	24	not applicable	29	not applicable	not applicable	various
Resident. & Commercial I Volatilization to Indoor Air Inhale. Criteria			1.0E+06	9,600	200	96,000	15,000	660,000	110	various
Industrial & Comm. II,III,IV Volatilization to Indoor Air Inhale. Crit.			2.3E+06	5,900	1,300	220,000	97,000	1.3E+06	690	various
Groundwater Contact Criteria			2.4E+06	1,900	11,000	200,000	37,000	1.3E+06	570	various
Flammability and Explosivity Screening Level			190,000	1.3E+06	48,000	270,000	ID	ID	17,000	various
Groundwater Acute Inhalation Screening Level			ID	ID	140,000	ID	1.1E+06	1.3E+06	ID	various

Notes and Abbreviations:

1. See Figure 3 for monitoring well locations.
2. ID: Inadequate data to develop criterion.
3. MRL/MQL: Method Reporting Limit/Method Quantitation Level.
4. **Bold** and Shaded: Indicates results greater than Michigan DEQ Generic Cleanup Criteria.

TABLE N2  
SUMMARY OF GROUNDWATER QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

	Michigan DEQ Part 201 Generic Cleanup Criteria												
	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III & IV Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial II, III & IV Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria	GP-4001 GW-1 20' - 21' 09/10/01	GP-4001 GW-2 31' - 32' 09/10/01	GP-4002 GW-1 20' - 21' 09/11/01	GP-4002 GW-2 31' - 32' 09/11/01	GP-4003 GW-1 20' - 21' 09/11/01	GP-4003 GW-2 31' - 32' 09/11/01	GP-4004 GW-1 20' - 21' 09/11/01
Analyte													
Field Parameters													
pH	-	-	-	-	-	-	7.22	8.1	7.42	8.01	7.13	7.87	7.34
Conductivity (mS/cm)	-	-	-	-	-	-	0.96	1.1	1.1	1.13	0.997	1.25	1.13
Volatile Organic Compounds (µg/L)													
1,1,1-Trichloroethane	200 {A}	200 {A}	200	6.6E+5	1.3E+6 {S}	1.3E+6 {S}	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethylene	7.0 {A}	7.0 {A}	65 {X}	200	1,300	11,000	< 1	< 1	< 1	< 1	1.9	< 1	< 1
1,2,4-Trimethylbenzene	63 {E}	63 {E}	ID	56,000 {S}	56,000 {S}	56,000 {S}	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	5.0 {A}	5.0 {A}	360 {X}	9,600	59,000	19,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	72 {E}	72 {E}	ID	61,000 {S}	61,000 {S}	61,000 {S}	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Methylnaphthalene	260	750	ID	ID	ID	25,000 {S}	< 5	< 5	< 5	< 5	< 5	< 5	< 5
4-Isopropyltoluene	ND	ND	ND	ND	ND	ND	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Benzene	5.0 {A}	5.0 {A}	200 {X}	5,600	36,000	11,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	100 {A,W}	100 {A,W}	ID	4,800	38,000	14,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	100 {A,W}	100 {A,W}	170 {X}	28,000	1.8E+5	1.5E+5	< 1	< 1	< 1	< 1	< 1	< 1	10
cis-1,2-Dichloroethene	70 {A}	70 {A}	ID	96,000	2.2E+5	2.0E+5	< 1	< 1	< 1	< 1	37	79	< 1
Ethylbenzene	74 {E}	74 {E}	18	1.7E+5 {S}	1.7E+5 {S}	1.7E+5 {S}	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Isopropylbenzene (Cumene)	800	2,300	ID	56,000 {S}	56,000 {S}	56,000 {S}	< 5	< 5	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	80	230	NA	ID	ID	5,900	< 1	< 1	< 1	< 1	< 1	< 1	< 1
n-Propylbenzene	80	230	ID	ID	ID	15,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Naphthalene	520	1,500	13	31,000 {S}	31,000 {S}	31,000 {S}	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	ND	ND	ND	ND	ND	ND	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P & M -Xylene	ND	ND	ND	ND	ND	ND	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Total Xylenes	280 {E}	280 {E}	35	1.9E+5 {S}	1.9E+5 {S}	1.9E+5 {S}	-	-	-	-	-	-	-
sec-Butylbenzene	80	230	NA	ID	ID	4,400	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	790 {E}	790 {E}	140	5.3E+5 {S}	5.3E+5 {S}	5.3E+5 {S}	< 1	< 1	< 1	< 1	< 1	< 1	1.1
trans-1,2-Dichloroethene	100 {A}	100 {A}	ID	85,000	2.0E+5	2.2E+5	< 1	< 1	< 1	< 1	18	11	< 1
Trichloroethene	5.0 {A}	5.0 {A}	200 {X}	15,000	97,000	37,000	< 1	< 1	1.5	< 1	1800	68	260
Vinyl chloride	2.0 {A}	2.0 {A}	15	110	690	570	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Notes and Abbreviations:

- Michigan DEQ Part 201 Generic Cleanup Criteria (June 7, 2000) are listed for reference only.
- {A}: Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, Act No. 399 of the Public Acts of 1976.
- {E}: Criterion is the aesthetic drinking water value.
- ID: Inadequate data to develop criterion.
- {M}: Calculated criterion is below the analytical Target Detection Limit (TDL), therefore, the criterion defaults to the TDL.
- {S}: Criterion defaults to the chemical-specific water solubility limit.
- {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 µg/L.
- {X}: The GSI criterion shown is not protective for surface water that is used as a drinking water source.
- ND: Risk based standards not available
- Data is preliminary and has not been validated.
- Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
- Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
- Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.

TABLE N2  
SUMMARY OF GROUNDWATER QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

	GP-4004	GP-4005	GP-4005	GP-4006	GP-4006	GP-4007	GP-4007	GP-4008	GP-4008	GP-4009	GP-4009	GP-4010	GP-4010	GP-4012	GP-4012	GP-4012	GP-4014	GP-4014	GP-4015
	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-2	GW-1	GW-2	GW-1
	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	9' - 10'	22' - 23'	22' - 23'	10' - 11'	22' - 23'	20' - 21'
Analyte	09/11/01	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01	09/13/01	09/13/01	09/13/01	09/13/01	09/13/01	09/13/01	09/14/01	09/14/01	09/14/01	09/17/01	09/17/01	09/18/01
Field Parameters																			
Conductivity (mS/cm)	7.47	7.15	7.86	7.51	8.03	7.19	8.01	7.27	7.51	7.43	8.13	7.49	7.95	7.42	7.51	7.51	7.18	7.32	7.21
pH	1.16	1.2	0.99	1.15	0.97	0.83	0.99	1.01	0.97	1.73	1.91	0.96	0.64	0.95	1.02	1.02	1.06	0.779	0.87
Volatile Organic Compounds (µg/L)																			
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4.3	1.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
1,1-Dichloroethylene	< 1	< 1	< 1	< 1	< 1	2.8	< 1	3.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	220
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	56
2-Methylnaphthalene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 130
4-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
Benzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4300
Bromodichloromethane	< 1	1.1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
Chloroform	< 1	18	< 1	1.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
cis-1,2-Dichloroethene	1.1	< 1	< 1	3.7	12	100	88	57	77	< 1	< 1	< 1	< 1	< 1	< 1	< 1	15	1.2	< 25
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	820
Isopropylbenzene (Cumene)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 130
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	100
Naphthalene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	190
o-Xylene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	270
P & M -Xylene	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1400
Total Xylenes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1670
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
Toluene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.1	1.1	1.1	< 1	< 1	< 1	< 1	< 1	< 1	600
trans-1,2-Dichloroethene	< 1	< 1	< 1	2.9	2.4	94	140	76	61	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 25
Trichloroethene	74	3.1	2	1300	1100	590	1400	2300	160	< 1	< 1	< 1	< 1	< 1	< 1	< 1	19	11	< 25
Vinyl chloride	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2.8	3.7	< 1	< 1	< 25

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  - {E}: Criterion is the aesthetic drinking water value.
  - ID: Inadequate data to develop criterion.
  - {M}: Calculated criterion is below the analytical Target Detection Limit (TDL), therefore, the criterion defaults to the TDL.
  - {S}: Criterion defaults to the chemical-specific water solubility limit.
  - {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 µg/L.
  - {X}: The GSI criterion shown is not protective for surface water that is used as a drinking water source.
  - ND: Risk based standards not available
  - Data is preliminary and has not been validated.
  - Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
  - Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
  - Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.

TABLE N2  
SUMMARY OF GROUNDWATER QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

Analyte	GP-4015	GP-4016	GP-4016	GP-4017	GP-4017	GP-4018	GP-4018	GP-4019	GP-4019	GP-4019	GP-4020	GP-4020	GP-4021	GP-4021	GP-4023a	GP-4024	GP-4025	GP-4025	GP-4026
	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-2	GW-2	GW-1	GW-2	GW-1	GW-2	GW-1	GW-1	GW-1	GW-2	GW-1
	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	20' - 21'	31' - 32'	31' - 32'	20' - 21'	31' - 32'	21' - 22'	31' - 32'	22' - 23'	21' - 22'	17' - 18'	25' - 26'	17' - 18'
	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/20/01	09/20/01	09/20/01	09/20/01
Field Parameters																			
Conductivity (mS/cm)	7.33	7.45	7.39	7.41	7.52	7.38	7.42	7.5	7.45	7.45	7.73	7.46	7.74	7.49	7.47	7.73	7.78	8.4	7.44
pH	0.96	1.1	1.09	0.85	0.93	0.95	1.04	0.87	0.94	0.94	1.99	1.32	2.31	2.08	1.09	1.2	0.99	0.643	1.89
Volatile Organic Compounds (µg/L)																			
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethylene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<b>1.1</b>	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	<b>140</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>74</b>	<b>12</b>	<b>1.8</b>	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	<b>1.1</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	<b>44</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>41</b>	<b>5.4</b>	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
2-Methylnaphthalene	<b>18</b>	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
4-Isopropyltoluene	<b>4.6</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>7.2</b>	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Benzene	<b>140</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	< 1	< 1	< 1	<b>13</b>	< 1	<b>2.6</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	<b>3.5</b>	< 1	<b>10</b>	<b>10</b>	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	<b>70</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Isopropylbenzene (Cumene)	<b>6.8</b>	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	<b>7.7</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
n-Propylbenzene	<b>25</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>11</b>	<b>1.4</b>	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Naphthalene	<b>33</b>	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	<b>93</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>5.2</b>	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
P & M -Xylene	<b>290</b>	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 100	< 2	< 2	< 2	< 2	< 2	< 2
Total Xylenes	<b>383</b>	-	-	-	-	-	-	<b>5.2</b>	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	<b>3.3</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>1.5</b>	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	<b>77</b>	< 1	< 1	< 1	< 1	< 1	< 1	<b>1.4</b>	<b>1.3</b>	< 1	< 1	<b>1</b>	< 50	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	<b>1.3</b>	< 1	<b>1.8</b>	<b>2.4</b>	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	<b>4.1</b>	< 1	<b>90</b>	<b>340</b>	<b>17</b>	<b>1000</b>	<b>860</b>	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl chloride	<b>2.5</b>	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 50	< 1	< 1	< 1	< 1	< 1	< 1

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  - {S}: Criterion defaults to the chemical-specific water solubility limit.
  - {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 µg/L.
  - {X}: The GSI criterion shown is not protective for surface water that is used as a drinking water source.
  - ND: Risk based standards not available
  - Data is preliminary and has not been validated.
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TABLE N2  
SUMMARY OF GROUNDWATER QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

Analyte	GP-4026	GP-4027	GP-4027	GP-4028a	GP-4028a	GP-4029	MW-4610
	GW-2	GW-1	GW-2	GW-1	GW-1	GW-1	09/24/01
	25' - 26'	17' - 18'	25' - 26'	25' - 26'	25' - 26'	25' - 26'	19' - 24'
	09/20/01	09/20/01	09/20/01	09/21/01	09/21/01	09/21/01	09/24/01
Field Parameters							
Conductivity (mS/cm)	7.55	8.03	8.38	8.02	8.02	8.33	7.07
pH	1.74	0.96	0.803	1.1	1.1	1.08	1.27
Volatile Organic Compounds (µg/L)							
1,1,1-Trichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethylene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-Methylnaphthalene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
4-Isopropyltoluene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Benzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	1.3	8.9
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Isopropylbenzene (Cumene)	< 5	< 5	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
n-Propylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Naphthalene	< 5	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P & M -Xylene	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Total Xylenes	-	-	-	-	-	-	-
sec-Butylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl chloride	< 1	< 1	< 1	< 1	< 1	< 1	99

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- {S}: Criterion defaults to the chemical-specific water solubility limit.
- {W}: Concentrations of trihalomethanes in groundwater must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 µg/L.
- {X}: The GSI criterion shown is not protective for surface water that is used as a drinking water source.
- ND: Risk based standards not available
- Data is preliminary and has not been validated.
- Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
- Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
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TABLE N3  
SUMMARY OF SOIL QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
PLANT 400 - 1300 NORTH DORT HIGHWAY  
FLINT, MICHIGAN

Michigan DEQ Part 201 Generic Cleanup Criteria								
Analyte	Residential & Commercial I Soil Leaching to Drinking Water Criteria	Industrial & Commercial II, III & IV Soil Leaching to Drinking Water Criteria	Direct Contact Soil to Indoor Air Particulate Inhalation	GP-4001 6' - 7' 09/10/01	GP-4001 16' - 17' 09/10/01	GP-4002 6' - 7' 09/11/01	GP-4002 16' - 17' 09/11/01	GP-4003 6' - 7' 09/11/01
<b>Volatile Organic Compounds (µg/kg)</b>								
1,2,4-Trimethylbenzene	2,100	2,100	ID	<79	<75	<84	<79	<83
2-Methylnaphthalene	57,000	170,000	ID	<170	<160	<180	<170	<180
cis-1,2-Dichloroethene	1,400	1,400	ID	<40	<37	<42	<39	<41
Ethylbenzene	1,500	1,500	360	<40	<37	<42	<39	<41
o-Xylene	ND	ND	ND	<40	<37	<42	<39	<41
P & M -Xylene	ND	ND	ND	<79	<75	<84	<79	<83
Total Xylenes	5,600	5,600	700	-	-	-	-	-
Toluene	16,000	16,000	2,800	<79	<75	<84	<79	<83
Trichloroethene	100	100	4,000	<40	<37	<42	<39	<41

**Notes and Abbreviations:**

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3. ND: Risk based standards not available.
4. Data is preliminary and has not been validated.
5. Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
6. Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
7. Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.

TABLE N3  
SUMMARY OF SOIL QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

	GP-4003	GP-4004	GP-4004	GP-4005	GP-4005	GP-4006	GP-4006	GP-4006	GP-4007	GP-4007	GP-4008	GP-4008	GP-4009
	16' - 17'	6' - 7'	16' - 17'	6' - 7'	16' - 17'	6' - 7'	6' - 7'	16' - 17'	6' - 7'	16' - 17'	6' - 7'	16' - 17'	6' - 7'
Analyte	09/11/01	09/11/01	09/11/01	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01	09/13/01	09/13/01	09/13/01
<b>Volatile Organic Compounds (µg/kg)</b>													
1,2,4-Trimethylbenzene	<67	<78	<81	<75	<80	<74	<75	<74	<72	<79	<74	<86	<76
2-Methylnaphthalene	<140	<170	<170	<160	<170	<160	<160	<160	<150	<170	<160	<180	<160
cis-1,2-Dichloroethene	<33	<39	<41	<38	<40	<37	<37	<37	<36	<40	<37	<43	<38
Ethylbenzene	<33	<39	<41	<38	<40	<37	<37	<37	<36	<40	<37	<43	<38
o-Xylene	<33	<39	<41	<38	<40	<37	<37	<37	<36	<40	<37	<43	<38
P & M -Xylene	<67	<78	<81	<75	<80	<74	<75	<74	<72	<79	<74	<86	<76
Total Xylenes	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	<67	<78	<81	<75	<80	<74	<75	<74	<72	<79	<74	<86	<76
Trichloroethene	<33	<39	<41	<38	<40	<37	<37	<37	<36	<b>140</b>	<37	<b>2200</b>	<38

**Notes and Abbreviations:**

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7. Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.

TABLE N3  
SUMMARY OF SOIL QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

Analyte	GP-4009 16' - 17' 09/13/01	GP-4010 6' - 7' 09/13/01	GP-4010 16' - 17' 09/13/01	GP-4011 6' - 6.5' 09/13/01	GP-4011 18' - 18.5' 09/13/01	GP-4012 6' - 6.5' 09/14/01	GP-4012 19' - 20' 09/14/01	GP-4012 19' - 20' 09/14/01	GP-4013 8.3' - 8.7' 09/17/01	GP-4013 21' - 22' 09/17/01	GP-4014 6' - 7' 09/17/01	GP-4014 17' - 18' 09/17/01
<b>Volatile Organic Compounds (µg/kg)</b>												
1,2,4-Trimethylbenzene	<88	<75	<85	<83	<72	<84	<74	<76	<b>90</b>	<79	<80	<82
2-Methylnaphthalene	<190	<160	<180	<180	<150	<180	<160	<160	<b>260</b>	<170	<170	<180
cis-1,2-Dichloroethene	<44	<38	<42	<42	<36	<b>120</b>	<37	<b>280</b>	<41	<40	<40	<41
Ethylbenzene	<44	<38	<42	<42	<36	<42	<37	<38	<b>41</b>	<40	<40	<41
o-Xylene	<44	<38	<42	<42	<36	<42	<37	<38	<b>100</b>	<40	<40	<41
P & M -Xylene	<88	<75	<85	<83	<72	<84	<74	<76	<b>140</b>	<79	<80	<82
Total Xylenes	-	-	-	-	-	-	-	-	<b>240</b>	-	-	-
Toluene	<88	<75	<85	<83	<72	<84	<74	<76	<b>130</b>	<79	<80	<82
Trichloroethene	<44	<38	<42	<42	<36	<42	<37	<38	<b>350</b>	<40	<40	<41

**Notes and Abbreviations:**

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3. ND: Risk based standards not available.
4. Data is preliminary and has not been validated.
5. Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
6. Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
7. Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.



TABLE N3  
SUMMARY OF SOIL QUALITY DATA  
SOIL AND GROUNDWATER INVESTIGATION  
FLINT EAST - PLANT 400  
FLINT, MICHIGAN

Analyte	GP-4023 6' - 7' 09/19/01	GP-4023 6' - 7' 09/19/01	GP-4023a 17' - 18' 09/19/01	GP-4024 5.2' - 5.5' 09/20/01	GP-4024 17' - 18' 09/20/01
<b>Volatile Organic Compounds (µg/kg)</b>					
1,2,4-Trimethylbenzene	<84	<82	<81	<85	<80
2-Methylnaphthalene	<b>230</b>	<180	<170	<180	<170
cis-1,2-Dichloroethene	<42	<41	<40	<42	<40
Ethylbenzene	<42	<41	<40	<42	<40
o-Xylene	<42	<41	<40	<42	<40
P & M -Xylene	<84	<82	<81	<85	<80
Total Xylenes	-	-	-	-	-
Toluene	<84	<82	<81	<85	<80
Trichloroethene	<42	<41	<b>190</b>	<42	<40

**Notes and Abbreviations:**

1. Michigan DEQ Part 201 Generic Cleanup Criteria (June 7, 2000) are provided as reference only.
2. ID: Inadequate data to develop criterion.
3. ND: Risk based standards not available.
4. Data is preliminary and has not been validated.
5. Table summarized compounds detected. Laboratory analytical reports are included in Appendix B.
6. Numbers in bold indicate that the compound was detected above the laboratory reporting limit.
7. Numbers shaded indicate that the compound detection or laboratory reporting limit exceeded one or more of the criteria limits.